Powys

Cyngor Castell-nedd Port Talbot
Neath Port Talbot Council

Llywodraeth Cymru
Welsh Government

A Global Centre of Rail Excellence in Wales

Planning, design and access statement

September 2020

Contents

1. *Introduction*

Introduction

This Planning, Design and Access Statement has been prepared by Ove Arup and Partners Limited (Arup) on behalf of Welsh Government in support of a cross boundary outline planning application (with all matters reserved), submitted to both Powys County Council (PCC) and Neath Port Talbot County Borough Council (NPTCBC) for the development of a Global Centre of Rail Excellence (GCRE) at the site of Nant Helen Surface Mine, Onllwyn at which coaling operations are coming to an end and final restoration by Celtic Energy was consented in June 2020 under a section 73 application 19/1899/REM.

In April 2020, Celtic Energy submitted two planning applications reference 20/0738/FUL (Powys) and P/2020/0362 (Neath Port Talbot) for a complementary earthworks scheme to provide a comprehensive, flexible and adaptable landform across the entire site that could support a wide range of future uses which included the GCRE, establishing the earthworks formation and associated drainage and landscaping for two of the key components of the rail testing facility, namely the high speed and infrastructure test track loops and rail line connections. Both were consented in July 2020.

Procedures for dealing with cross boundary development are made within the Town and Country Planning (Fees for Applications, Deemed Applications and Site Visits) (Wales) Regulations 2015 (as amended) and provides that planning applications should be submitted in each jurisdiction and determined by each local planning authority concerned. In this case, a planning application will be submitted to both NPTCBC and PCC.

Environmental Impact Assessment

The site of the proposed development is more than 1 hectare in area and constitutes major development as defined within the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 (as amended). Subsequently, the planning application has been scoped to accord with the requirements associated with major development as prescribed by the regulations.

Previous planning applications for development at the site were subject to Environmental Impact Assessment (EIA). Under the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017, the development has been deemed as requiring EIA, the scope of it having been agreed by both PCC and NPTCBC in a joint Scoping response in November 2019.

Given that the application is in outline with all matters reserved, it has been agreed that this document can be a combined Planning, Design and Access Statement which sets the context for the planning application and proposals therein. It considers the context to the site and its surroundings, the design evolution of the proposals and the environmental impacts of the proposed development and assesses the material planning considerations against the policy background in justifying the granting of planning permission. It should be read in conjunction with the Environmental Impact Assessment.

Material Planning Considerations

The nature and scale of the proposed development, in the context of the site's location and features, creates several material planning considerations which have been broadly considered in a format that mirrors the EIA (construction and operation effects) and include;

- Principle of development and the land use and the prevailing Development Plan policy context
- Socio-Economic benefits
- Geotechnical (land stability and contamination)
- Construction Management (focused primarily on noise mitigation)
- Hydrological Impact (sustainable drainage, water quality and flood risk)
- Landscape and Visual Impact (national park, common land and rights of way)
- Ecological Impact (SSSI, SINC, habitats and protected species)
- Heritage Impact (Scheduled Monument)

This Statement will focus on addressing the key aspects of the proposed development and those which give rise to potentially significant effects. Aspects which give rise to lesser effects are addressed at length within the EIA and are not duplicated here.

2. *Objectives, Trends and Benefits*

Objectives

GCRE aims to meet a number of objectives which have been developed to address the issues and needs of the UK rail industry:

- Deliver a UK-based modern and comprehensive rail testing facility to provide the capacity and capabilities for rigorous testing of rolling stock, infrastructure and integrated systems from prototype to implementation.
- Act as a catalyst for the creation of a rail technology hub in Wales, providing a flexible, open-market platform for leading R&D activity that drives innovation.
- Provide opportunities to work with industry to support skills development through high-quality employment in fair, secure and sustainable jobs that contribute to reducing regional inequality and promoting regeneration in Wales.
- Develop and test rail sector principles, standards and specifications which improve the UK's competitive strengths as a world leader in achieving carbon neutrality, contributing to an overall decrease in carbon emissions across the rail industry.

Beyond the industry objectives, there are other reasons/drivers of change or desirable outcomes that play directly into either the site or the local context, chief among these are:

- A transformational impact on the heads of valleys by regenerating the post-coal landscape and creating new socio-economic opportunities.
- Interpretation of the historic environment and the transport heritage aspects of the mining context of the site and beyond given the presence of a section the linear tram road scheduled monument on the site. At present, accessibility is limited and there is no in-situ interpretation and one outcome of this scheme could be an improvement to the experience of using the local footpath network through narrative on the historic transport context associated with mining.

The Case for Change

The UK does not possess anything approaching such a high-quality facility as that planned at GCRE. Both public and private sector organisations frequently use test facilities in Europe and the USA, supporting jobs and building competing expertise in other countries. Moreover, these other facilities are often owned and operated by a single commercial entity, which stifles access to testing and innovation. With projects such as HS2, CrossRail2, Northern Powerhouse Rail and the Cardiff Valleys transformation approaching, together with the soon to be time-expired status of the majority of the UK's signalling infrastructure (in itself an estimated £35 bn renewals programme from 2025), the need for safe and efficient testing to drive performance and cost-efficiency has never been greater. Operational independence and full open-market access is critical to allow competition and innovation to flourish.

GCRE will address a number of specific issues:

- Supporting UK train manufacturers and encouraging the establishment of further UK manufacturing facilities and testing capacity.
- Supporting the development of a UK digital railway industry by providing high quality and safe testing facilities for digital signalling, train control and asset management technologies.
- Delivering high-tonnage endurance testing of railway infrastructure particularly track and structures; such a facility will enable infrastructure to be rapidly tested and verified and would be unique in Europe, potentially attracting customers from around the world – Network Rail has a strong and confirmed interest in this element.
- Removing risk from the introduction of new trains and other assets by allowing them to be thoroughly tested prior to deployment. This would avoid the need for new trains being tested on the national network or rushed into service before all performance risks had been dealt with (note issues with new inter-city trains; certain electrification assets; and projects such as Crossrail). With infrastructure and rolling stock testing in a single location, more robust systems integration testing can be conducted.
- Tackling ever-rising costs across the rail sector by allowing new technologies to be effectively tested and commissioned rather than committing them to operations before they are fully developed.
- Generating high quality employment and economic opportunities for communities in South West Wales.
- Providing further opportunities for sustainable technologies associated with the rail sector (electric, battery, links to sustainable generation).

Industry Trends

The rail industry faces substantial challenges and opportunities to exploit new, emerging and existing technology within a rail environment. For example:

Traction

Hydrogen fuel cell battery packs

Discontinuous electrification

2040 diesel deadline

Control

European train control system

Automatic train control

Digitisation

Data transfer and communication
automated inspection and maintenance

Design

Lightweight materials

Research Trends

The GCRE is the vehicle to create a rail technology hub for business and research, creating and strengthening links to potentially include Innovate UK, UKRIN and local universities whose specialisms include:

Cardiff University

The Low Carbon Research Institute (LCRI)
Centre for Integrated Renewable Energy Generation and Supply (CIREGS)
Electric Vehicle Centre of Excellence (EVCE)
Centre for Automotive Industry Research (CAIR)
The High Value Manufacturing (HVM) Group

Swansea University

Materials Research Centre (MRC)
Swansea Materials Research & Testing or SMaRT
Institute of Structural Materials (ISM)

University of South Wales

The Energy and Environment Research Institute (EERI)
The Wales Transport Research Centre (WTRC)

A response to Covid-19

At the time of writing, the UK is currently going through a health and economic crisis due to the global Covid-19 pandemic.

It is still early to predict the medium- and long-term economic effects of the global pandemic, however short-term impacts are already being felt. The lockdown has resulted in 18% of businesses reporting temporarily closing or pausing trading and 20% of the workforce being furloughed under the UK Government's Coronavirus Job Retention Scheme. This is predicted to lead to an economic recession, with UK GDP declining by 2% in the first quarter of 2020.

Unemployment data in the UK currently does not yet fully reflect the impact of the lockdown, but there has been a significant increase in Universal Credit claims, of 40% or 1.2 million applications in a single month, which indicates that unemployment will rise sharply[3]. Stock markets have already seen steep falls in value only comparable to those of 2008, both in the UK and across the globe. The UK government has announced a series of economic packages to mitigate the impacts to businesses and individuals. There will also be significant costs to the NHS and for the overall pandemic response.

The number of rail passenger journeys have steeply declined, with skeleton services in place for key workers and essential journeys, leading to lost revenue. On Monday 23rd March, the Government announced a key decision specific to the rail sector: it would temporarily suspend rail franchise agreements to avoid franchisees from collapsing because of the fall in demand due to Covid-19[4]. For the following six months, train operators will be able to transfer "all revenue and cost risk" to the UK Government and be paid a small sum as a management fee to carry on operating rail services. Transport for Wales (TfW) has also put in place interim financial arrangements for Wales.

The significant costs of the pandemic will no doubt be a burden on public finances. This means that going forward there will be an increasing need to deliver maximum efficiency and cost efficiency in the rail sector as we emerge from the national crisis and set a course for the future. Infrastructure spending will also be needed to kick-start the economy and ensure long-term economic recovery. In addition, the rail sector will need to innovate to accommodate changes in customer and operator user needs as a result of the pandemic, such as adapting to a future "low contact economy".

GCRE is well placed to provide a solution for both of these issues, through its focus on infrastructure (including digital infrastructure), innovation and transport delivery efficiency, and its potential contribution to supporting transport, mobility and the economic benefits which come from connectivity. It can be an immediate and positive response to the inevitable recession in Wales and in the UK, providing a short-term benefit, while developing an asset that will deliver positive outputs and outcomes over the longer-term.

Market Opportunities

- Infrastructure testing
- Vehicle/rolling stock testing
- Maintenance & refurbishment
- Research & development
- Decommissioning
- Education & training
- Power & energy

Scheme Benefits

Organisation	Benefits
Welsh Government	The creation of jobs and wealth, and growth in inward investment, will drive economic growth and contribute to prosperity in Wales.
TfW Rail Services	Having this unique facility within close reach will generate operational cost savings.
Network Rail	The ability to test in a purpose-built facility will generate cost savings and productivity growth. Innovation will be converted into operational improvements much more quickly than can happen at present. Increased competition in the rail supply chain will lower costs.
Department for Transport	Productivity improvements will reduce the cost of building, operating and maintaining the railways. The faster commercialisation of innovation will enhance network capacity and improve the passenger experience sooner. Innovations developed at GCRE will allow the rail industry to contribute to the ambitious net zero carbon targets.
Dept for Business, Energy & Industrial Strategy BEIS	GCRE will contribute to delivering the Industrial Strategy by catalysing technology development, accelerating the rail industry's contribution to exports by opening new markets, and helping to boost the commercialisation of innovation
UK Rail Research and Innovation Network (UKRRIN) / Research Organisations	Productivity gains will be delivered through the improved capacity to innovate, especially at higher Technology Readiness Levels (TRLs)
Train Operating Companies	Enhanced capacity, greater reliability and improved attractiveness of rail travel will lead to higher passenger revenues. Improved ability to commercialise innovation will help reduce operating costs.
ROSCOs	Innovation and faster testing will increase productivity and reduce financial risk.
Local Authorities	Creation of jobs and wealth in Neath Port Talbot and Powys will drive economic growth and an associated increase in rates revenues. Local companies could benefit from spill-over effects.
Train Manufacturers	Local testing capacity will reduce the time and cost of testing new rolling stock (e.g. by not having to transport vehicles abroad). Reliability of brand-new stock will be improved to match aerospace and automotive sectors. Problems with new rolling stock are more likely to be detected during a thorough testing process – this is less costly to fix than problems occurring when already in passenger service.
Infrastructure Manufacturers	A streamlined process and additional capacity for testing their products will enable manufacturers to demonstrate reliability and acquire certification. Innovative ideas will be commercialised sooner.
Colleges and Higher Education	GCRE will offer opportunities for applied teaching, upskilling the workforce and tackle labour challenges in the rail industry by attracting young people to the industry.
Freight Operating Companies	Journey time improvements and enhanced capacity could generate extra revenues and mode shift in the freight industry. Innovation will accelerate the shift from diesel to sustainable traction.
HM Treasury	The new jobs and local economic impacts will increase tax revenues. Industry-wide productivity improvements will improve the cost-effectiveness of public investment in rail projects. Innovation can reduce costs and increase passenger revenues, reducing the cost to the Treasury of running the railways.
Passengers	Better testing will reduce delays (removing the need to test on the live railway and increasing the likelihood of finding and solving errors at the testing phase before entering into passenger service). Innovation will contribute to extra capacity and other passenger benefits being rolled out.
Office of Rail and Road (ORR)	GCRE will deliver improved cost efficiency and competitiveness in the rail industry and will allow the ORR to better evaluate Network Rail's performance with fewer excuses for poor performance.
Rail Safety and Standards Board	Railway safety standards could improve through new technologies that facilitate automation. The increased innovation and shortened development times will deliver productivity benefits.

Contribution to Technology Readiness Levels

Technology Readiness Levels (TRL) were originally conceived and defined by NASA in the 1970s and 1980s They were later adopted by the EU and incorporated into the EU Horizon 2020 Programme. The TRLs are:

- TRL **1** Idea: Technology idea is conceived and developed using desktop and laboratory research.
- TRL **2** Invention: Experimentation and desktop modelling used to verify veracity of technology in line with anticipated usage.
- TRL **3** Proof of Concept: Proof of concept is ascertained using robust and repeatable processes.
- TRL **4** Development: Technology is validated against high level requirements in a laboratory and/or experimental environment.
- TRL **5** Validation: Technology is validated against user requirements in a representative environment.
- TRL **6** Demonstration: Performance of pre-production assets / system is demonstrated in an operationally representative environment.
- TRL **7** Qualification: Production standard assets are qualified for use in an operational environment.
- TRL **8** 1st of Class: First of Class asset deployed for operational usage under commercial conditions; and
- TRL **9**: Production repeated and repeatable technology deployment in conjunction with managed asset development / evolution.

GCRE can contribute against all the TRLs but will make an immediate and profound impact at TRLs 5-9.

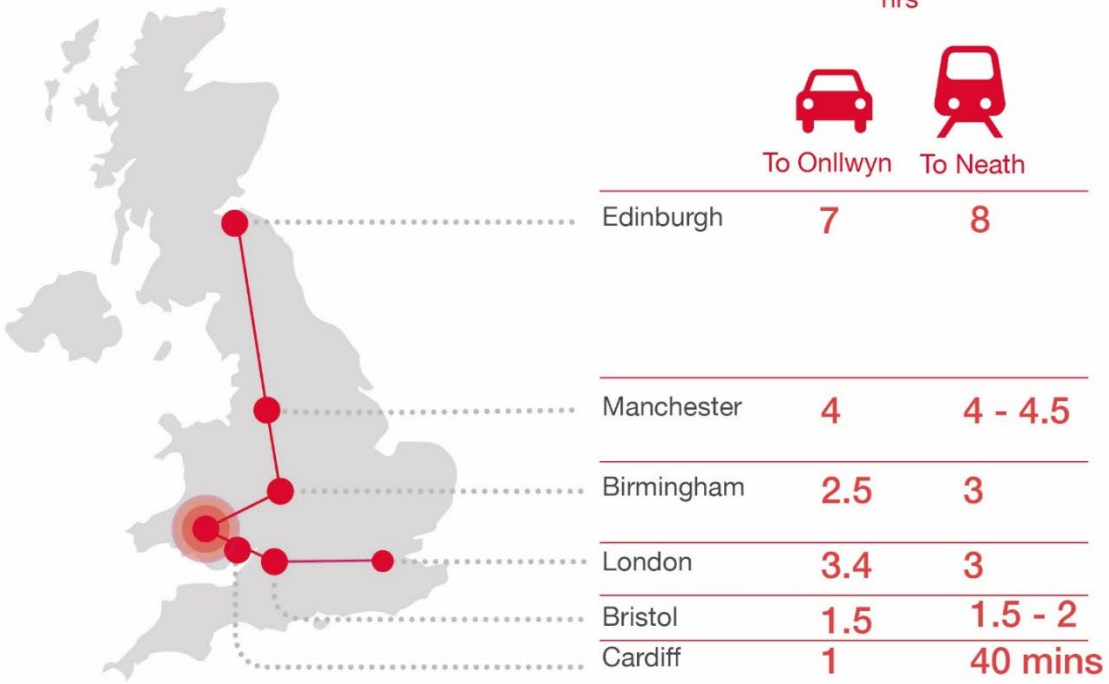
3. *Site & Context Analysis*

Why Nant Helen?

The Nant Helen site has a number of important advantages:

- It is large enough to accommodate the needs of the rail industry on a single site.
- It is in single ownership and there is no need to use compulsory purchase powers.
- The natural termination of existing coaling use (Celtic Energy is decommissioning the site in 2021), means it is available and a new industrial legacy can be simultaneously created.
- Good access to the rail network, strategic road network and to deep water ports.
- Strong potential for local regeneration, and an opportunity to avoid the long-term socio-economic issues that can otherwise occur when mines close.
- Catalytic effect – there are local opportunities that the implementation of the GCRE at Nant Helen scheme might provide the impetus to investigate the feasibility of. Two examples that have been raised in consultation include passenger use of the rail connection to Onllwyn and the running of a private wire from the Maes Gwyn windfarm.

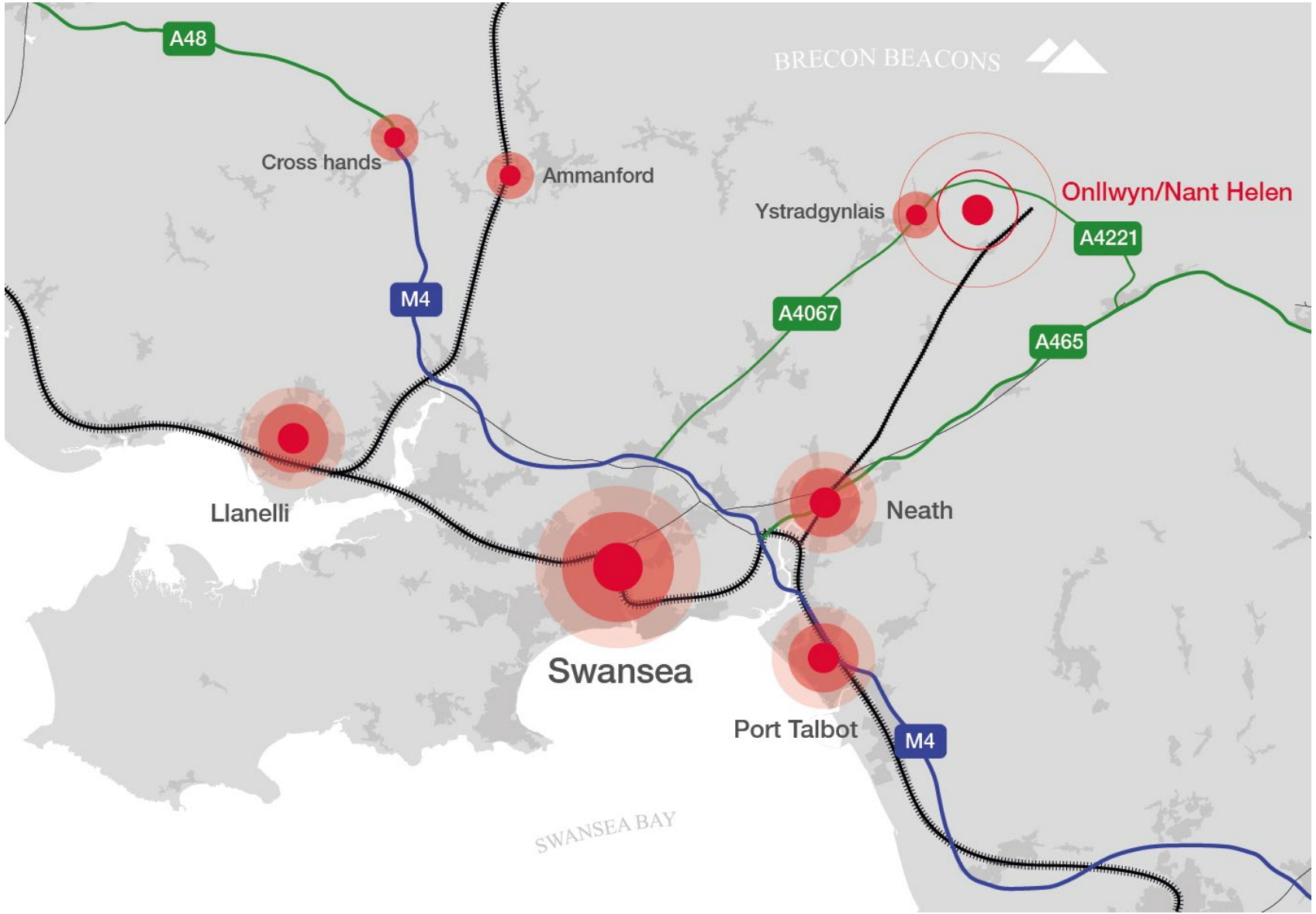
UK Context


hrs
To Onllwyn
To Neath
Edinburgh 7 8
Manchester 4 4 - 4.5
Birmingham 2.5 3
London 3.4 3
Bristol 1.5 1.5 - 2
Cardiff 1 40 mins


WALES
Birmingham
Nant Helen/Onllwyn
Gloucester
Swansea
Neath
Newport
Cardiff
Bristol

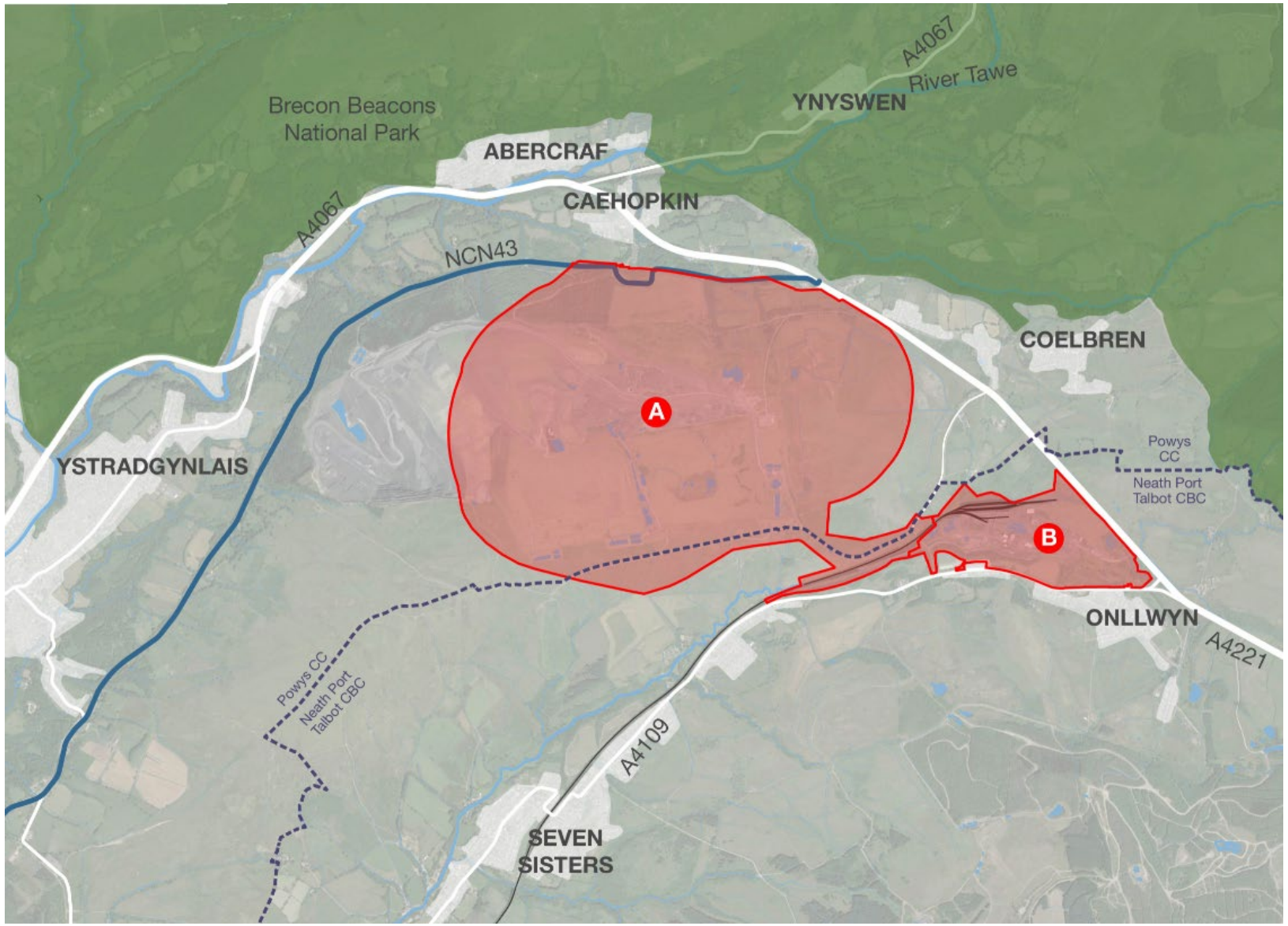
Strategic Location Context

Proximity to Centres and Transport Linkages



The Sites


Nant Helen
The Washery
Ynyswen
Abercraf
A4067
A4221
Coelbren
B4599
Penrhos
Brecon Rd
gynlais
Onllwyn
Onllwyn
Wembley Ave
Onllwyn Rd
Dyffryn Cellwen
Golwg-Y-Bryn
Mary St
A4109
Seven Sisters



Key

- **A** Nant Helen open cast mine
- **B** Onllwyn coal washery site
- Local authority boundary
- National cycle route
- Brecon Beacons National Park

NB. All features mapped approximately

Context and Character

The site is one of scale and variety, with its backdrop of the National Park to the north, encircled by roads and variously sized settlements.

It is a site of mixed character due to the variety of habitat and functions (including common land) that is has supported over time, from the activity and buildings associated with the Washery, then out into the wider historically opencasted and subsequently restored areas, to the currently worked.

It is a mosaic of areas of different topography and appearance that create a complex and changing character to the site as you move across and around it as evidenced by the landscape and visual impact assessment and viewpoint analysis included in the Environmental Statement.

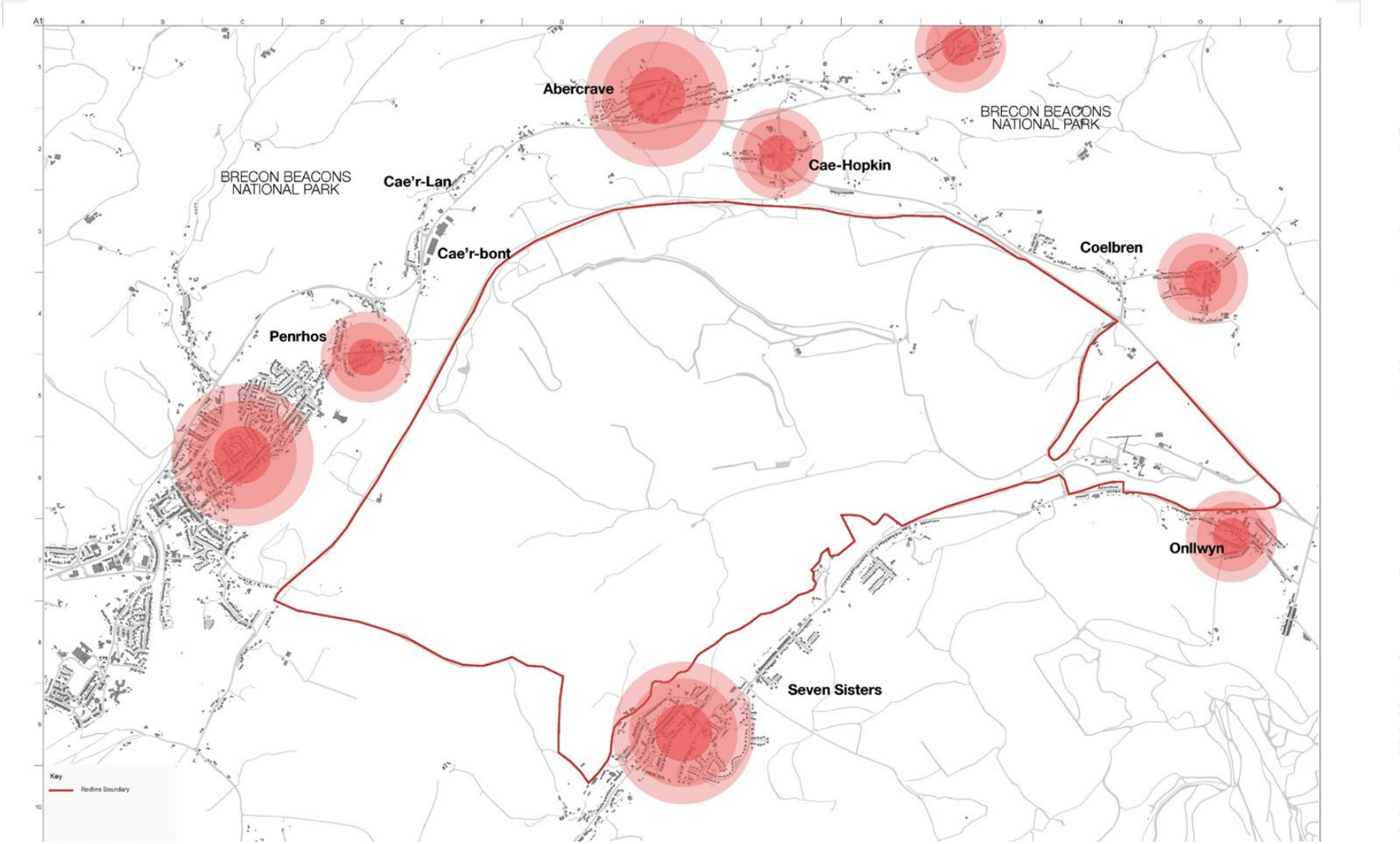
Existing site context

The existing site is varied in character with the built form of the Washery, overhead power lines, punctuating a landscape of grazing land and wetland, criss-crossed with access routes and bordered to the south by the existing rail freight line.

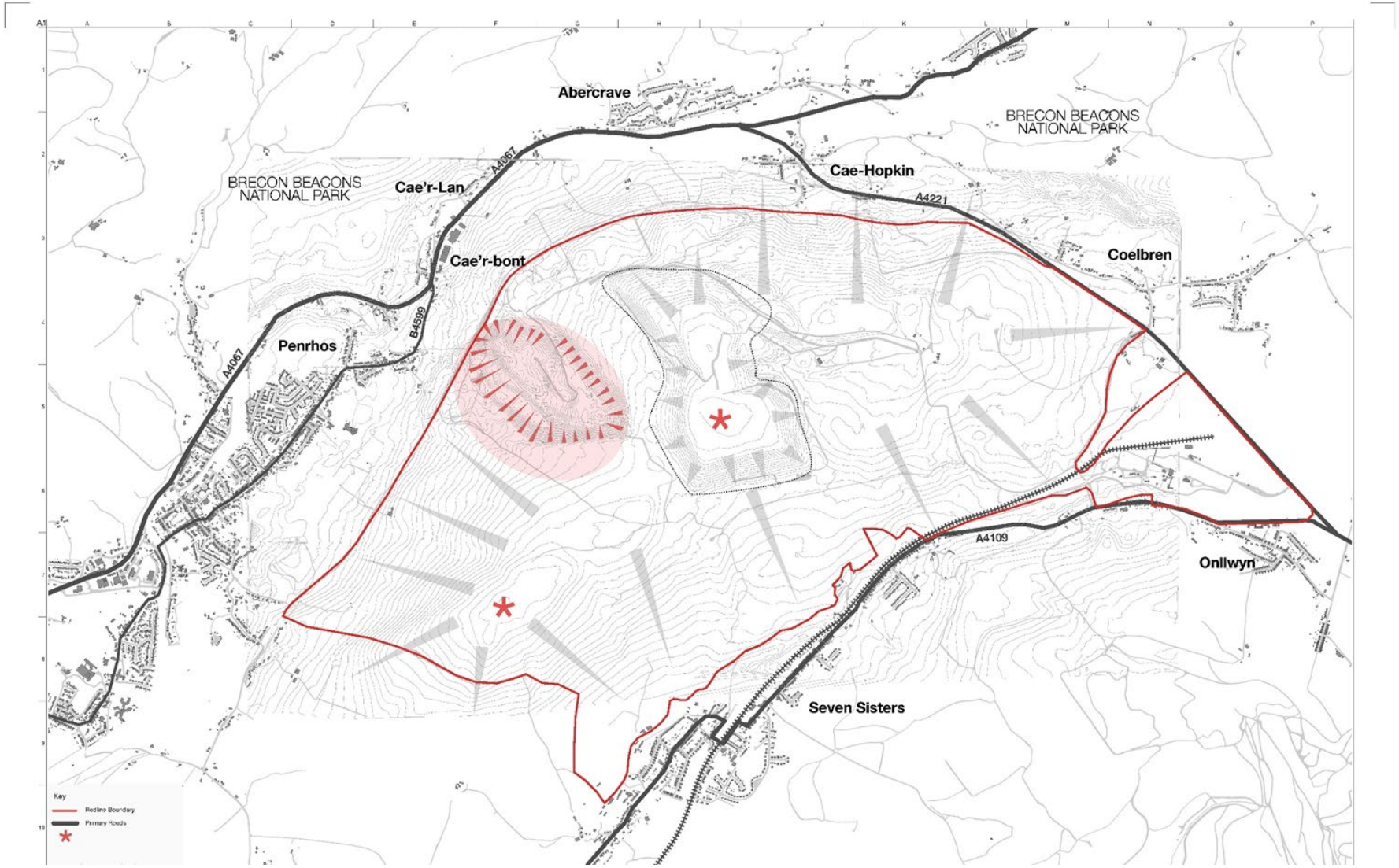
Existing site context

The site is a landscape that exhibits both restored, former open casted areas (the locally named ‘wedding cake’ overburden mound’) and the currently actively worked void. The currently active site is bordered by single and groups of dwellings that line the access roads on its periphery.

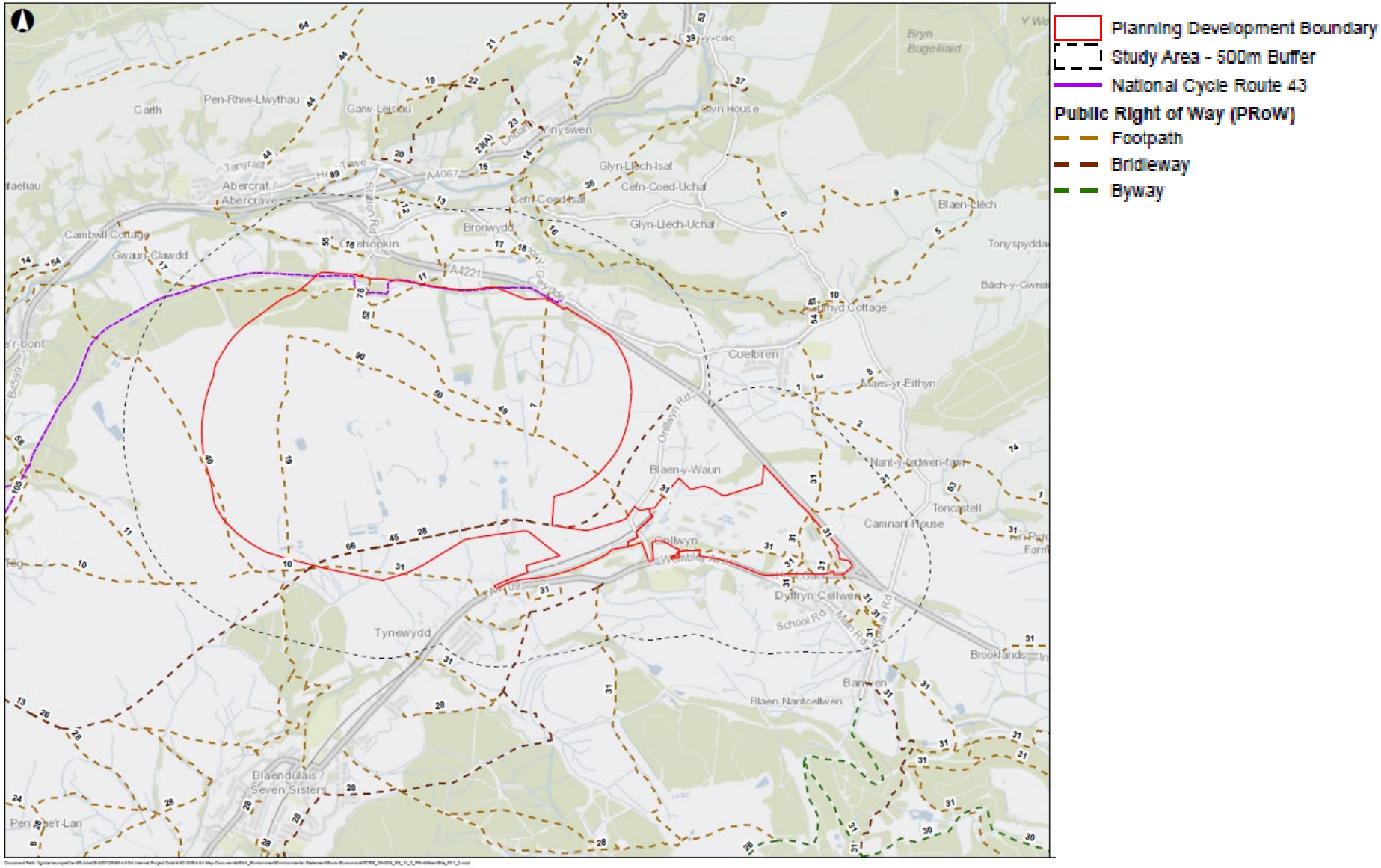
Settlement context surrounding the site



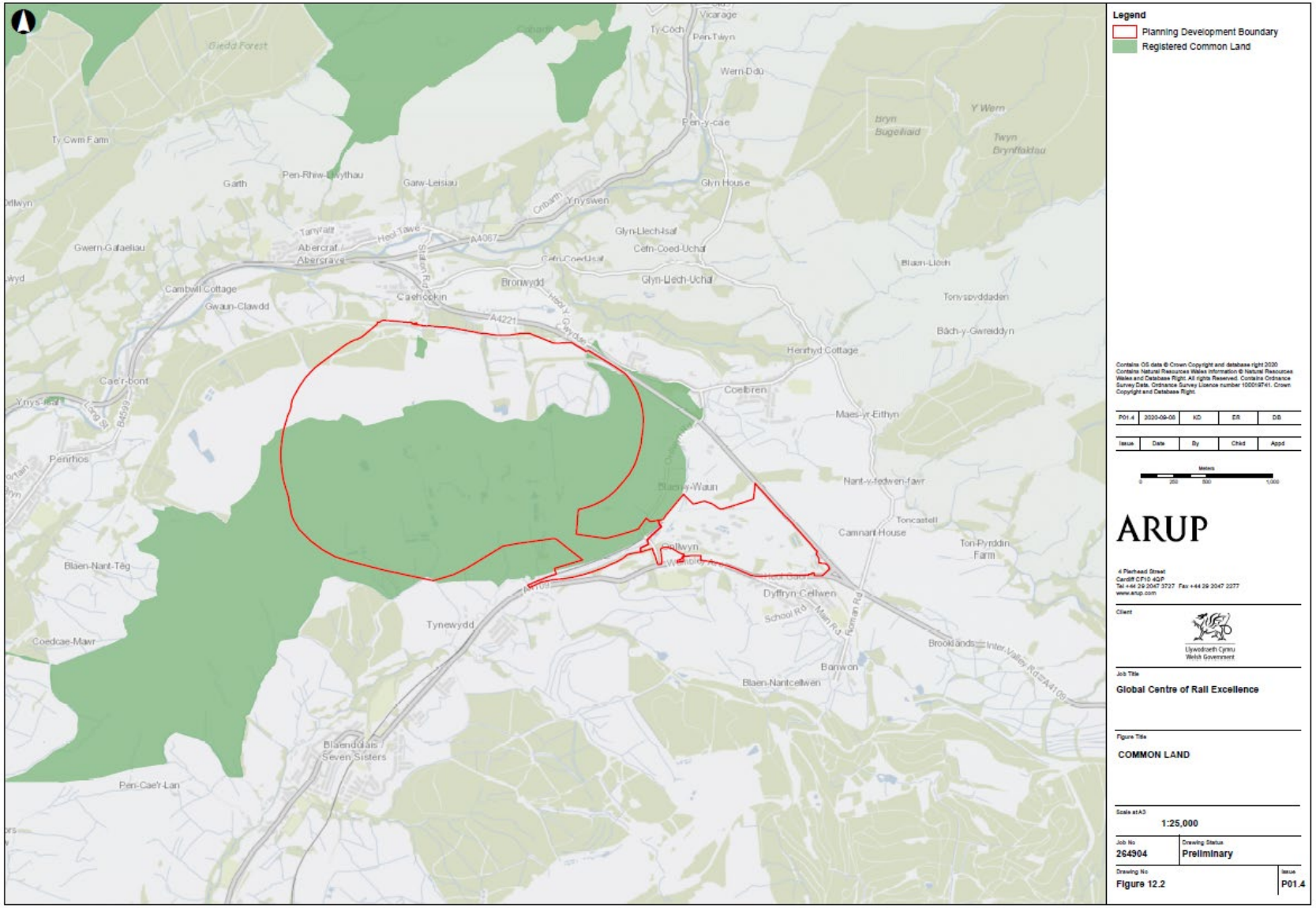
Key Gradients – Visual Influence



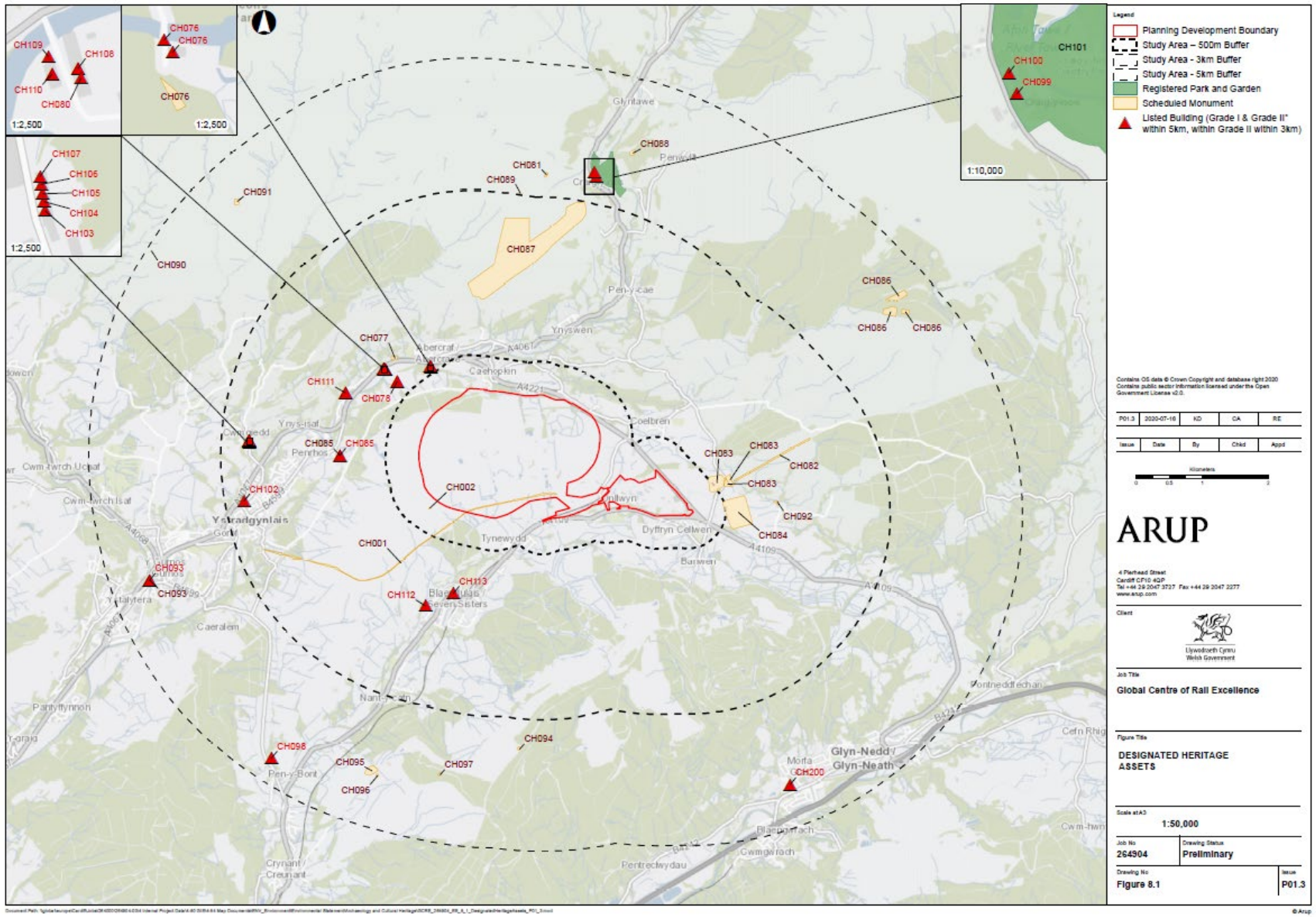
Public Rights of Way



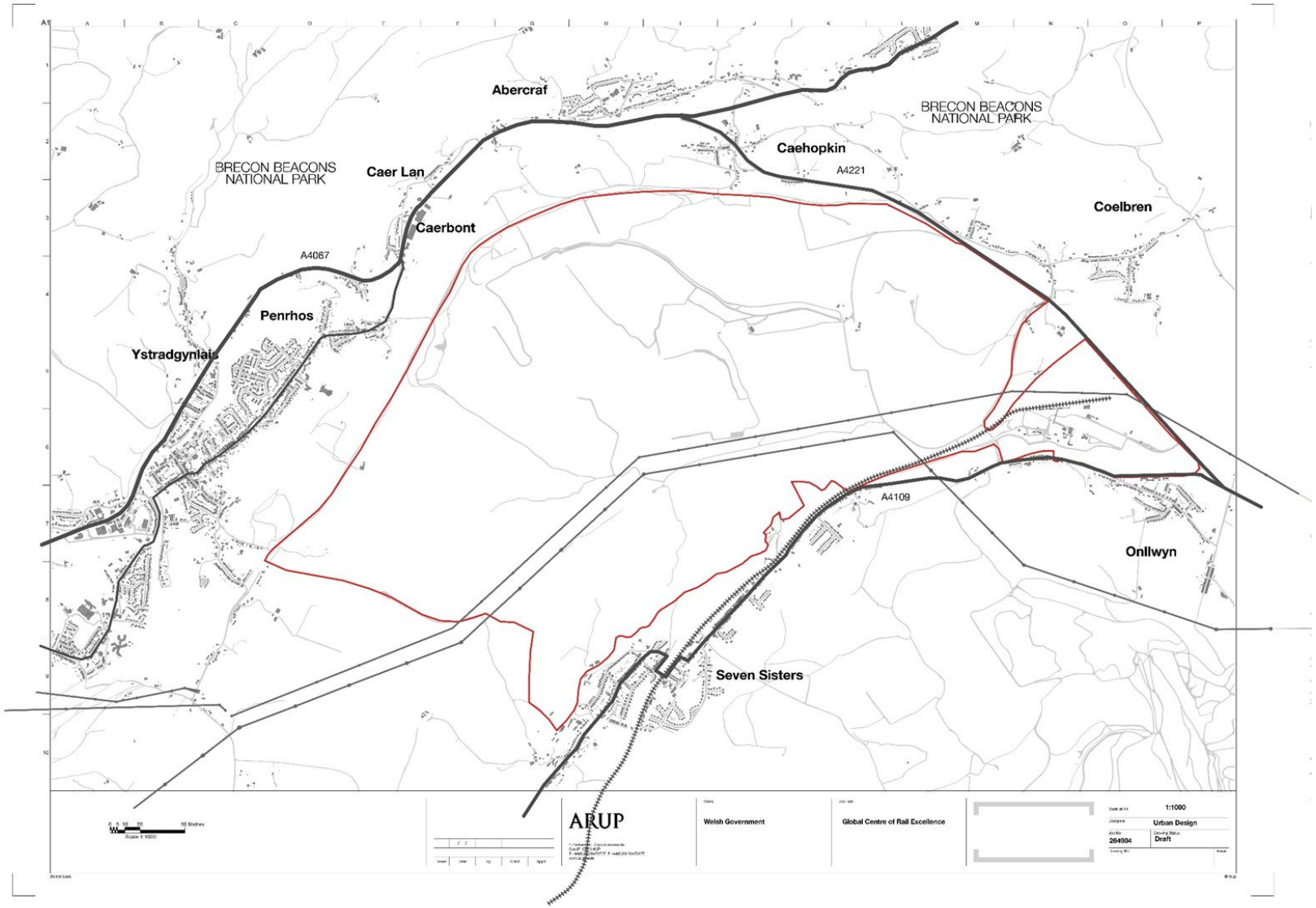
Extent of Common Land



Designated Heritage Assets



Utilities Infrastructure



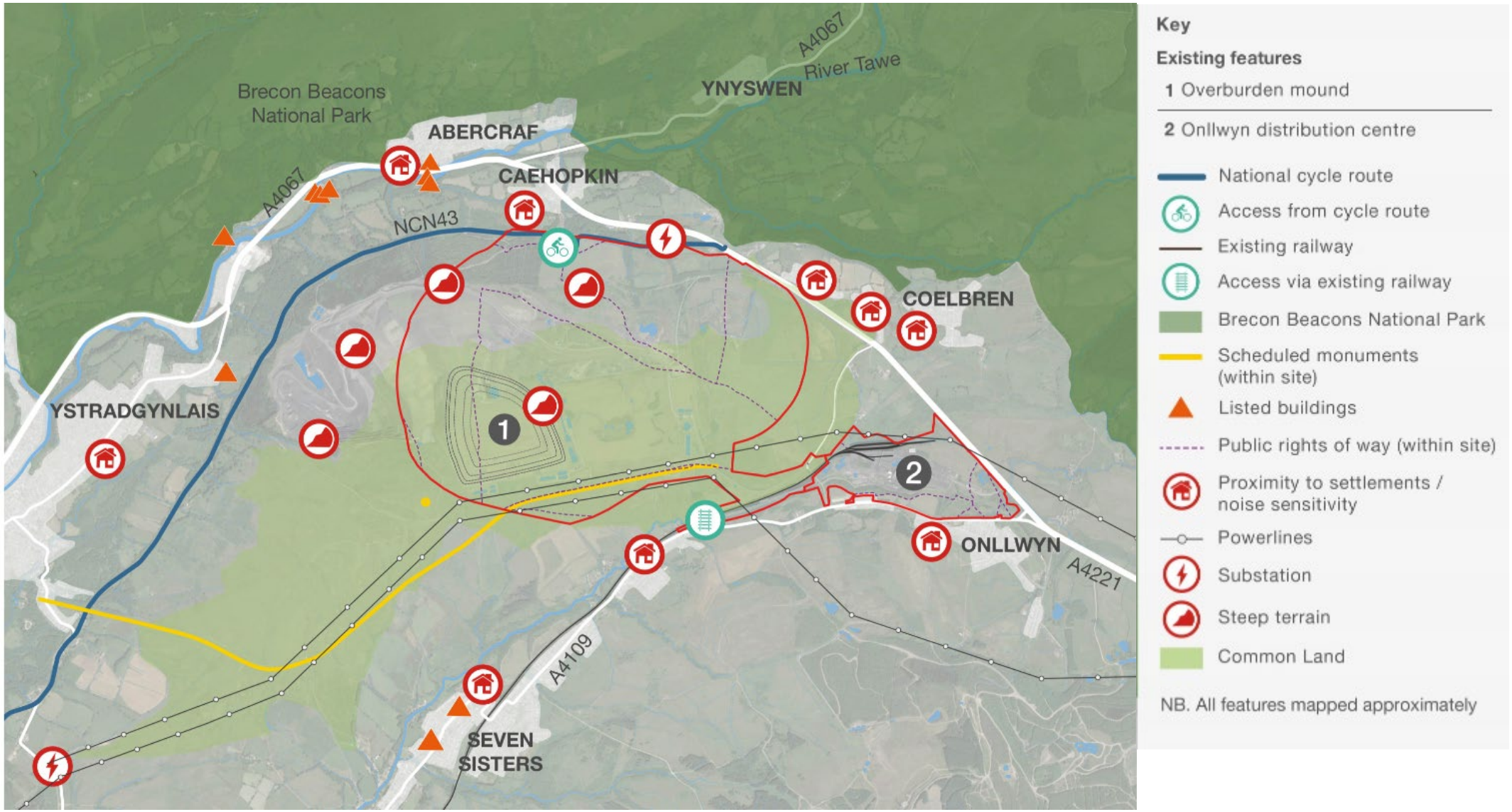
4. *Design Development*

Drivers of Design

The evolution of the scheme and ultimately the illustrative masterplan that encapsulates the output has been influenced and driven by a number of key constraints and considerations including:

- Surrounding context in terms of proximity to the National Park and the context of its additional accreditation as an International Dark Skies Reserve
- Proximity of settlements and residential receptors
- Topography and ground conditions
- Connections to the existing railway line
- Utiities, predominantly overhead powerlines
- Public Rights of Way
- Common land
- Heritage assets of national importance
- Rail industry consultation requests for facilities and the number and size thereof
- Technical high speed and infrastructure testing requirements

Opportunities and Constraints



Shaping the scheme through industry and other specialist engagement

The eventual track loop configuration and the component parts that form the proposals for the Washery site have been shaped by a process of rail industry and rail academic and other institutional engagement over a period of nearly 2 years. The below is not an exhaustive representation of all that have contributed, but is a snapshot of the breadth of engagement (other than that at pre-application stage with local residents and other interested parties) that has shaped the illustrative layout and the ingredients of the GCRE scheme.

RSSB A Better, Safer Railway

University of Birmingham

Bombardier

Cardiff University / Prifysgol Caerdydd

NetworkRail

Arup

The University Of Sheffield. / AMRC Cymru

serco

DB

amey

University of Leeds

Trenitalia Gruppo Ferrovie dello Stato

University of South Wales Prifysgol De Cymru

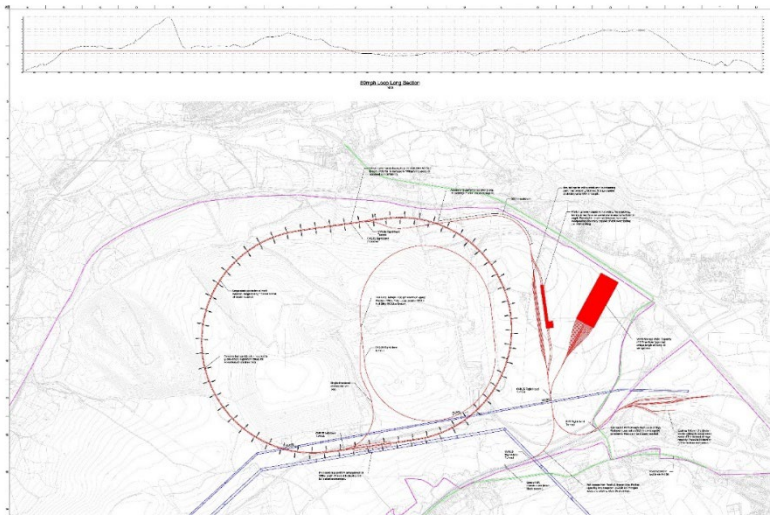
UKRI Innovate UK

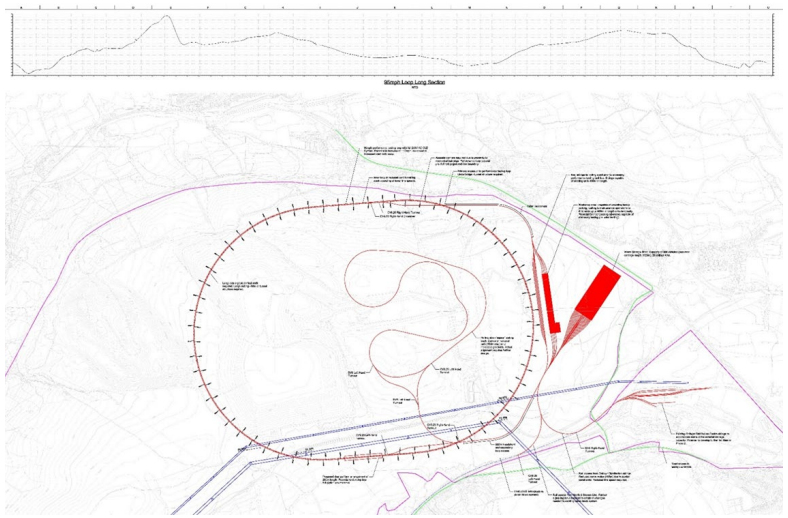
CAF

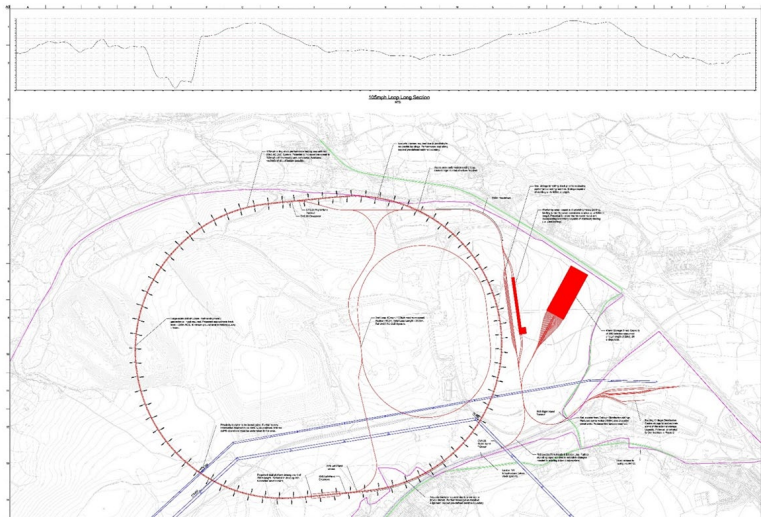
University of Southampton

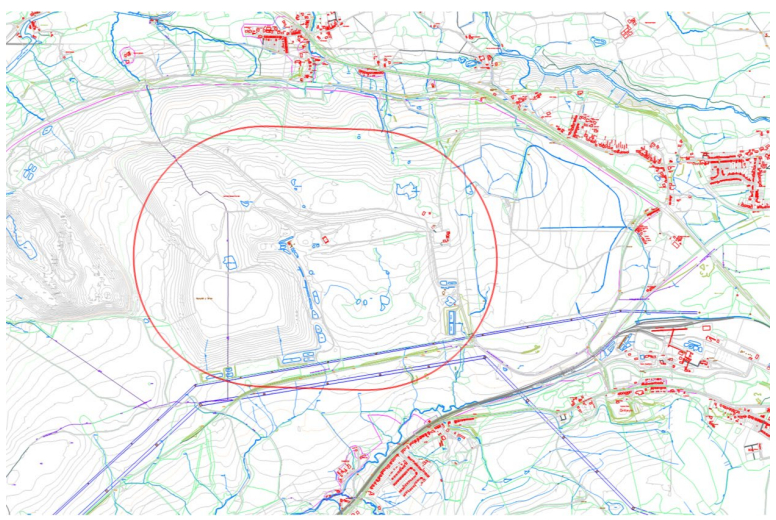
Swansea University Prifysgol Abertawe

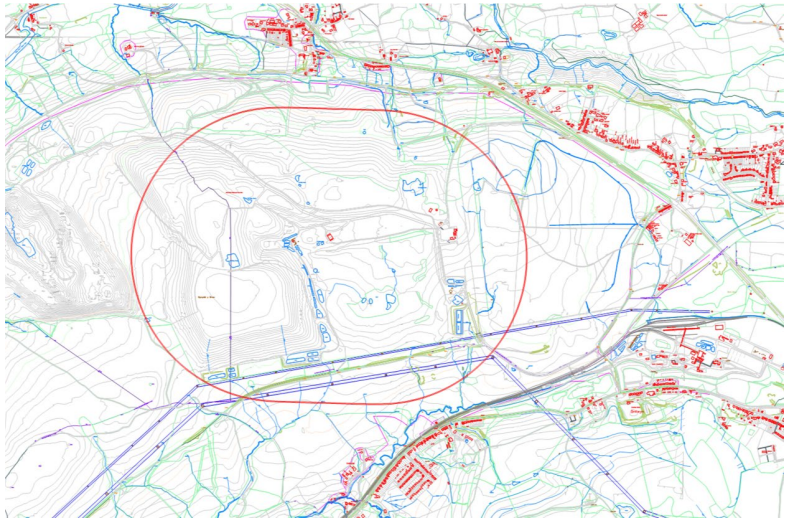
Track Layout Option Evolution – a selection of the iterations of internal and external loop variants

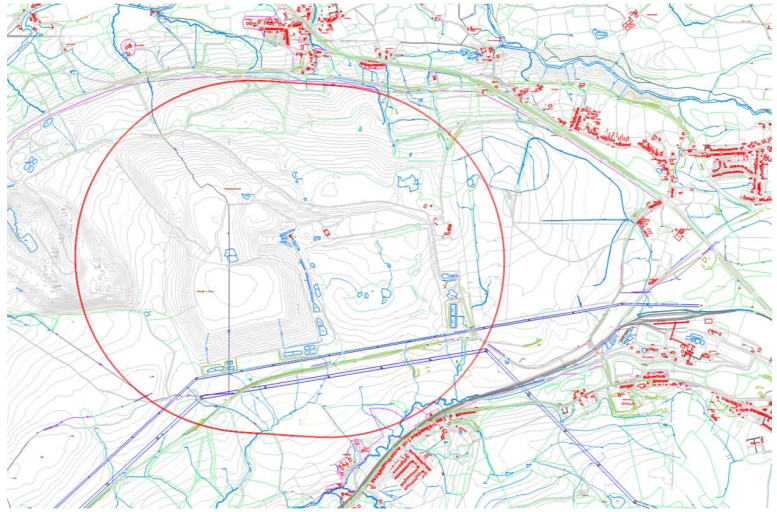




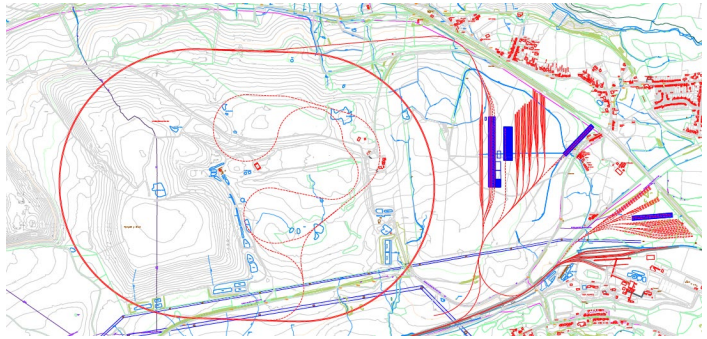


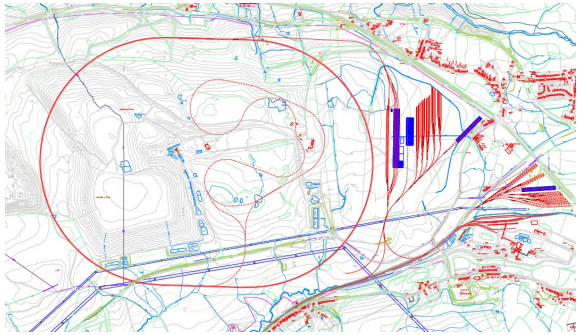


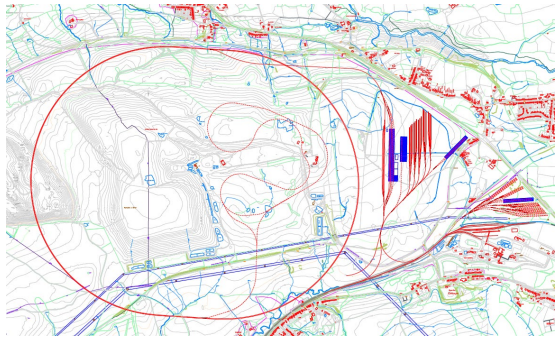


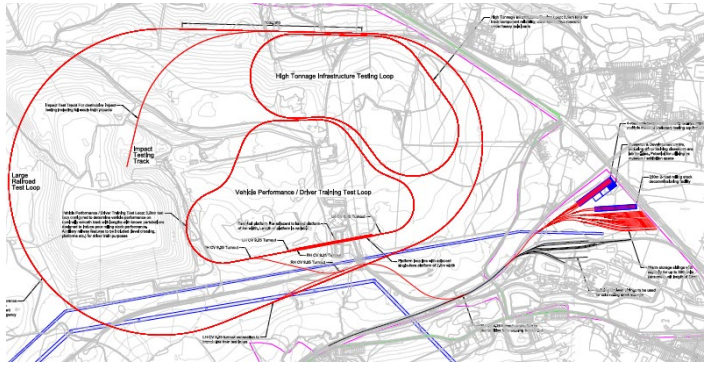


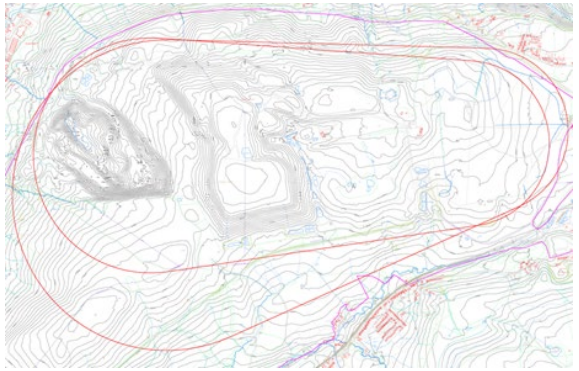
Track Layout Option Evolution – a selection of the iterations of internal and external loop variants











5. *The Proposals*

The Proposal

On the land associated with the Nant Helen open cast site, the scheme principally features:

- a single (with room for a second subject to future market demand) electrified 'rolling stock test track' (6.9 km) for performance testing of electric, diesel and hydrogen powered trains up to a line speed of 110 mph.
- a single 'high tonnage infrastructure test track' (4.5 km) for testing of infrastructure including track systems, civil structures, ancillary lineside equipment, signalling, power and telecommunications up to a line speed of 40mph.
- a dual platform station environment (typical of the UK rail network) for the testing of train – platform interfaces. The platforms will have sufficient length to serve 230m trains and will likely take the form of modular, pre-cast concrete units constructed off-site.
- The test track will have a vehicular access track around its entirety as a means of access for maintenance staff and will be contained within a 2.1m palisade fence line along both corridor boundaries, or appropriate acoustic mitigation where required.
- An overhead 25kv AC traction power system with scope for additional DC 3rd/4th rail system at a later stage. The OLE system will likely take the form of a series of cantilevered structures at 40m intervals around the test tracks.
- The test track will connect to the existing branch line and washery area via a bi-directional delta junction. It is anticipated most rolling stock would access the facility via the Neath & Brecon Branch Line and Swansea Burrows beyond, although some trains may be transported to site via road.

Core facilities on land associated with the Onllwyn Washery land include:

- Research, development, education and training/conference centre including laboratory space for the collation and assessment of testing results as well as lay-down areas for equipment being tested.
- An operations & control centre/office
- 4 road testing/maintenance facility for trains undergoing testing at the facility, with capacity for 2no. 400m trains and 2no. 230m trains simultaneously with provision of a headshunt road at rear of the facility for increased operational flexibility.
- Warm and cold storage sidings – a set of storage roads for the medium-long term storage of fleets. Storage capacity for up to 400 vehicles with connection to electricity supply units located incrementally along the sidings
- Carriage wash building and Controlled Emission Toilet (CET) spine facility
- 25kv OLE infrastructure
- Staff block with mess and overnight stay facilities (for 10 staff)
- Related infrastructure to include access routes, drainage, lighting, electrical sub-stations (5no.), mobile and land based 'hyper connected' communications, CCTV, perimeter/security fencing (including acoustic mitigation as required), Neath and Brecon Branch Line connection.

Additional Facilities Information

The below provides further context on the components of some of the main facilities that subject to demand/requirements could include:

- A 4-road maintenance shed could provide:
    - Facility for changing wheelsets/underframe components
    - A single pitted road to allow underframe inspections
    - Jacking equipment on all remaining shed roads
    - CET provisions for all rolling stock - diesel, water and compressed air supplies
    - Multiple LV power supplies – 100V, 240V etc.
    - Multiple 23m raised access gantries to provide full roof access
    - 5-10 tonne crane on at least one road
    - Vehicle weighing facilities, software testing facilities, fire testing and emissions testing all within static testing area.
- Rolling stock decommissioning siding to be accessible by a static crane, together with a 1 car shed for covered cleaning.
- Wheelset storage – both covered and uncovered lay-down areas and lockable stillages
- Associated laboratory for vehicle weighing facilities, software testing facilities, fire and emissions testing all within static testing area.
- Hydrogen Refuelling facility.
- Research & Development facility to include driver training facility.
- Network Rail compliant platform structure, with potential for full station environment.

Scale Parameters

The below provides context on the scale parameters for the building related components:

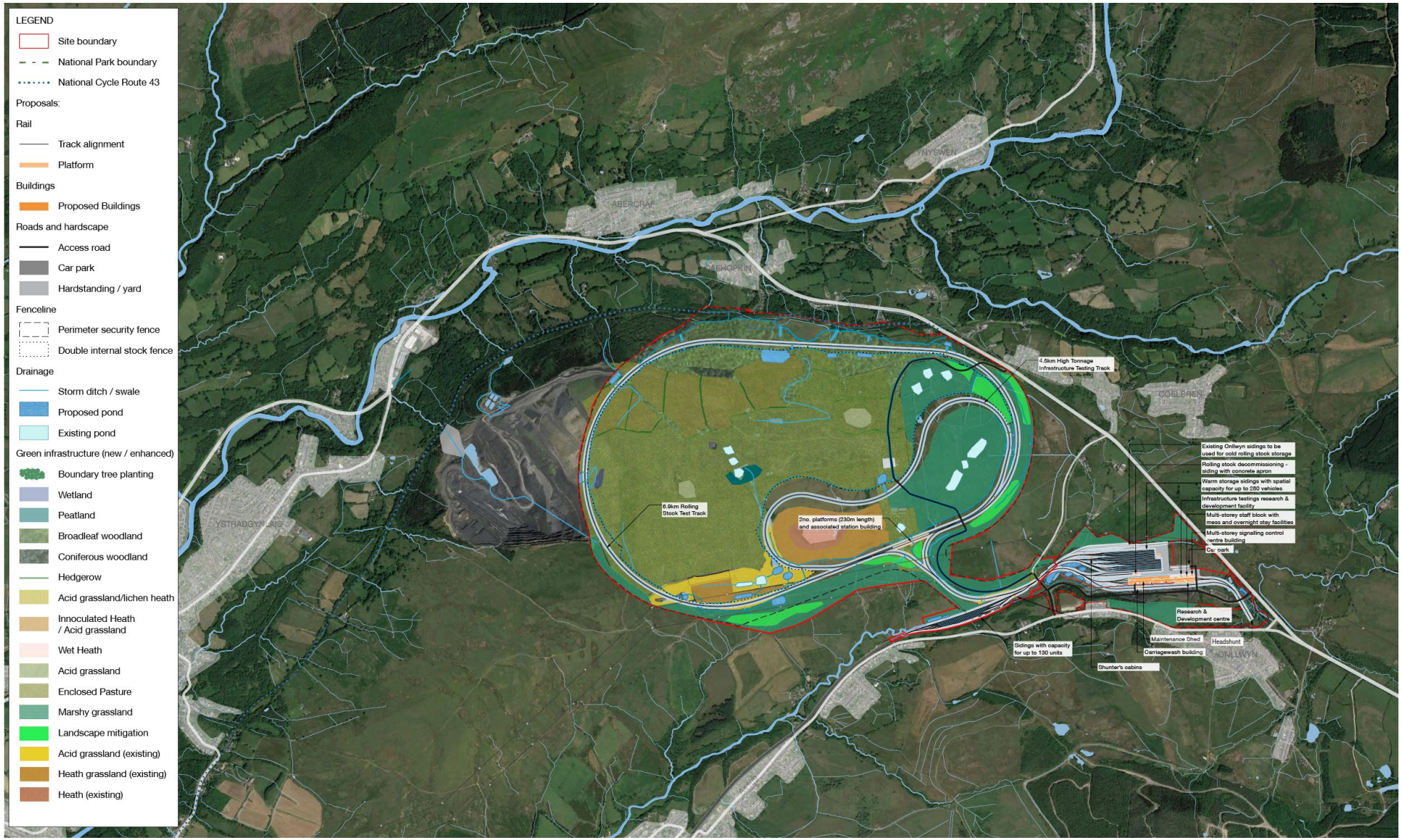
Infrastructure/Building/Structure	Floorspace (M^2)	Length (M)	Width (M)	Height (M)	Length (Km)	Storeys
Control Building	600	10	30	10		2
Staff facilities building (Phase 1 modular)	120	20	6	15		1
Staff facilities building (Final)	900	30	10	15		3
Infrastructure Testing Research & Development Centre (Phase 1)	480	20	12	10		2
Rolling Stock Research & Development Centre (Phase 3)	1,000	50	10	10		2
Rolling Stock Maintenance Shed (& rail roads of 250m length)	15,000	400 (2-roads) 250 (2-roads)	40	12		2 (office and storage in upper storey)
Decommissioning Facility	350	35	10	12		1
Carriage Wash	Only part enclosed/covered	35	10	12		1
Shunters cabins (2no.)	60 (30 each)	10	3	3		1
Rolling Stock Test Track					6.9	
Infrastructure Test Track					4.5	
Overhead line equipment (OLE)				Structure – 9 Wire – 5.5		

Based on the scheme constituent parts, the overall development quantum required is for up to 20,000 sqm of rail related buildings.

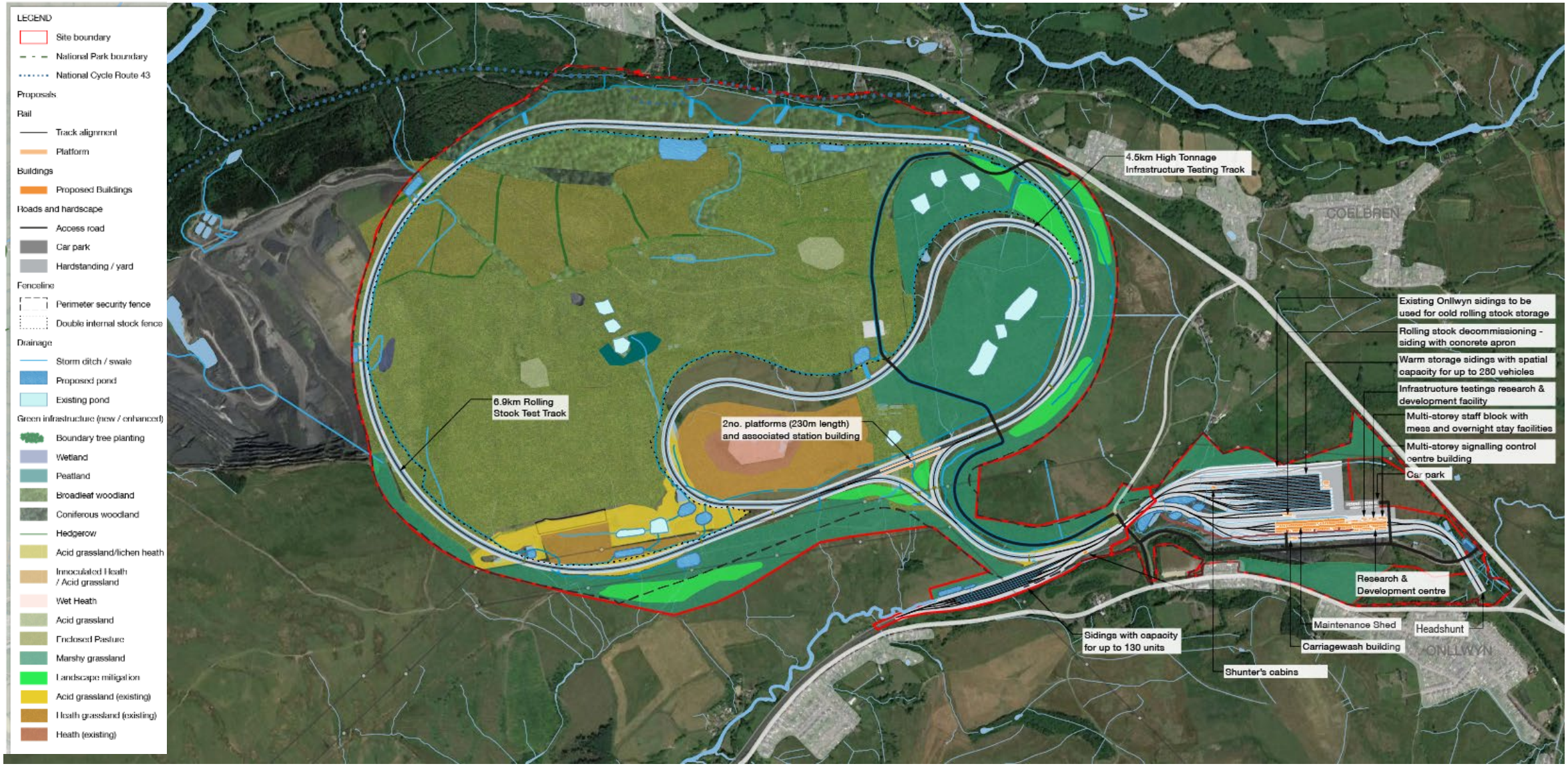
In terms of height, the maintenance shed will be the tallest building requiring up to 15.0 metres to ridge above final ordnance datum level. The smallest buildings will be the two shunters cabins at 3.0m in height above final ordnance datum level.

A GLOBAL CENTRE OF RAIL EXCELLENCE IN WALES

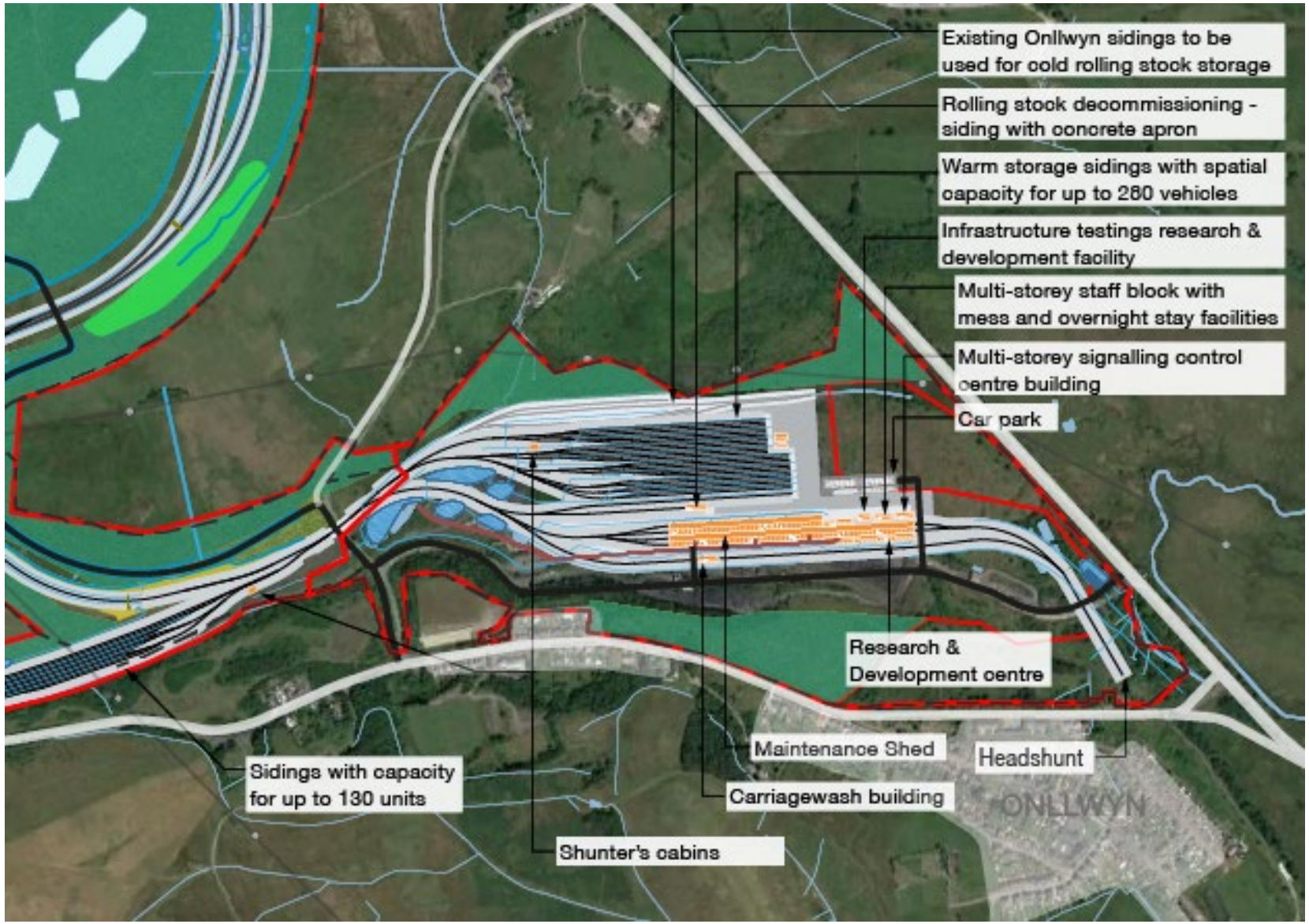
Illustrative Masterplan



Illustrative Masterplan – full site



Illustrative Masterplan – Onllwyn Extract



Potential Phasing

It is likely that the delivery of the project will be phased and buildings will be developed on an incremental basis as the facility evolves.

This is dependent upon the requirements of the industry and the market demand, but at the time of application is envisaged as being as follows:

- Phase 1: The opening of the 4.5km test track, largely for testing infrastructure and some stabling facilities, in 2023.

- Phase 2: The addition of the 6.9km test track primarily for testing rolling stock in 2024.

- Phase 3: The addition of expanded stabling facilities and research facilities in 2025.

5a. Character

Examples of rail storage and maintenance possible building typology

The heart of the storage and maintenance part of the development, will naturally be more ‘industrial’ with ‘form following function’ in its scale, building typology and character. This is the operational hub with buildings akin to an industrial park, with large units, with clear internal spans. Notwithstanding the function, there are opportunities to introduce variation in roof form, materials, colours and other façade treatments to bring variety to this part of the site, aid legibility etc. This zone will be a mix of buildings and rail roads, which due to the necessary train and other vehicular movements and other operational and safety requirements will not offer the same ability as with the more campus style office/R&D zone to introduce planting aside from around its periphery to screen and soften the zone from external receptors.

Examples of R&D/lab/office possible building typology

Proposed Institute for High Speed Rail and System Integration (IHSRSI), Gateway 45, Leeds

Graphene Engineering Innovation Centre, Manchester University

Proposed Siemens Mobility innovation centre at Goole 36

Royal Holloway Innovation Centre

UCLan Engineering Innovation Centre

The less industrial and more business focussed part of the development will offer the opportunity to introduce a building typology more akin to that of an academic campus or business park, with buildings that have more façade variation through the use of different materials and breaking up of building mass with glazing to a greater extent than those that have a storage or maintenance role. Variation in roof form, materials, colours and other façade treatments would bring variety to this part of the site, whilst creating a defined character area and the gateway to the wider facility. The introduction of a mix of hard and soft landscaping will soften this area, provide sustainable drainage (SuDS) and add to the quality and sense of place of this part of the development.

Examples of rail control centre possible building typology and wider testing environment

Metro Hub Building, Treforest

Network Rail East Midlands Control Centre, Derby

Examples of boundary treatments and fencing

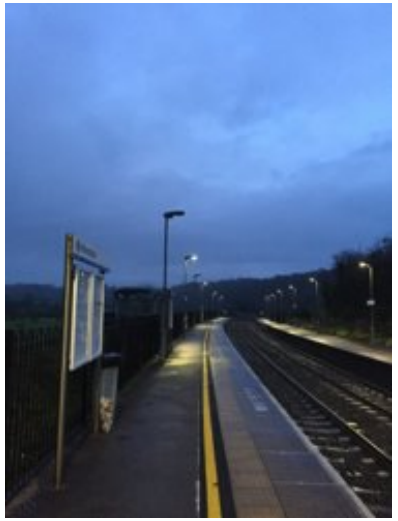



A variety of noise mitigation fencing/barriers will be proposed as necessary to remove/reduce impact, primarily on surrounding residential receptors.



2.1m ‘Palisade’ style security fencing is widely used in the rail environment and can be powder coated green to better blend in soft landscape areas. There is the potential to combine security and acoustic fencing in locations where both are required. Stock proof fencing will also be required in areas of potential grazing.

Examples of lighting



A variety of lighting will be proposed to aid site safety, operational and security requirements and general orientation. Lighting will also facilitate winter and any working outside of daylight hours. Given the proximity to the National Park and its International Dark Skies Reserve accreditation, it will be important to restrict external lighting to the minimum necessary and use directional low lux lighting. Gantry lighting to the test tracks will be limited to necessary areas such as junctions.

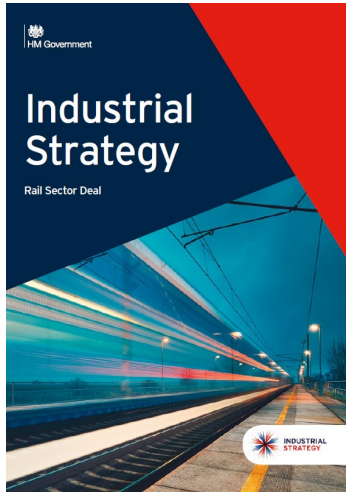
6. *Policy Appraisal & Alignment*

Policy and Strategy Alignment

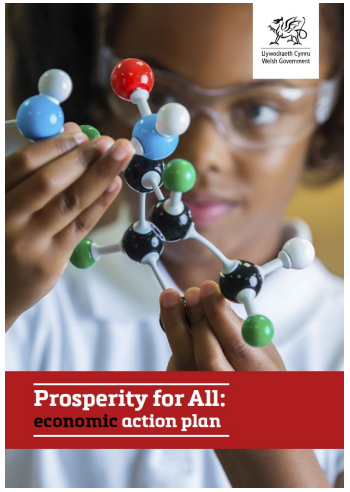
A review of all relevant international, national, sector, regional and local policies and strategies has been undertaken to identify those most relevant to the project. This chapter summarises the context and the scheme response to the policy and strategy/guidance which is explored in topic-specific detail in the relevant chapters of the ES, ie policy on biodiversity is presented in full in that assessment chapter.

UK GOV

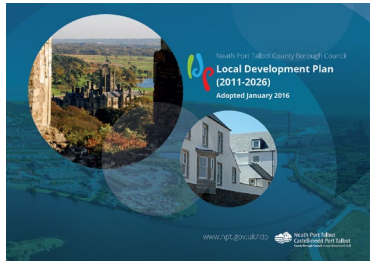
UK GOV (RAIL SECTOR)

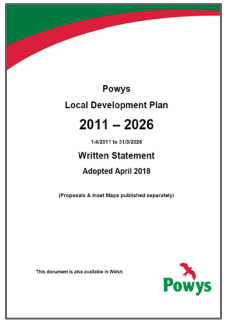


WELSH GOVERNMENT



REGIONAL & LOCAL





UK Rail and Transport Policy Context

The UK rail sector plays a key role in delivering UK industrial strategy and climate change goals, as well as economic prosperity and well-being. It continues
to develop to meet the demand for personal mobility, and the movements of physical goods, and is driven both by end user needs and those of wider public sector policies designed to support long term sustainable economic growth. It must do this whilst optimising the value for money of the sector's outputs at net costs which are affordable. To achieve this requires:

- a clear understanding of the ever-changing user needs;
- the capacity and capability to innovate, design and build to the resulting service specifications in the most cost-effective manner; and
- the bringing into service of the new or re-purposed assets, systems and processes in a timely manner, recognising that any railway is itself a complex
- system and the change to any one or more parts of that system will have consequential impacts on the rest of the system.

All of this is happening within an environment where:

- the UK's rail sector is organisationally fragmented;
- the UK's rail sector is experiencing significant disruption and lost revenues due to the COVID-19 pandemic;
- technologies are changing rapidly (especially the embedding of digitalisation and the emergence of commercially-sustainable artificial intelligence);
- there is an increasing urgency to deliver strategic objectives in respect of carbon neutrality; and
- in places the current national infrastructure is already operating close to its
- economically-sustainable capacity and has little headroom to host
- development and testing of innovative products and systems.

Too often investment in new assets and systems for the rail sector is failing to achieve the full benefits on which its own strategic, economic and financial business cases have been predicated. Whilst there are many contributing reasons as to why programmes run late, and/or cost more than planned, and/or fail to deliver fully the outcomes (benefits) on which they were predicated, a key factor is the resilience or otherwise of the planning and delivery of testing and commissioning activity across the stages of a programme's life cycle.

For the benefits of any railway investment to be fully captured it is essential that the validation and verification procedures which result in new or modified assets and systems being placed into use are robustly planned, effectively managed and efficiently delivered.

Railways operate as complex systems, with multiple interfaces – technical, operational and commercial. Therefore, success depends not only on the performance of each component but critically on the system integration and management of the interfaces. Railways are delivered through a combination of people, assets and systems – increasingly digitally enabled. Testing and commissioning must therefore take all of these elements into account.

Through taking a holistic approach to the totality of testing and commissioning, an opportunity exists to develop and deliver value-adding services which:

- mitigate risk;
- reduce whole life costs; and
- assure user experience.

Rail and Transport Policy

As a long-standing demand of the railway sector and an industry-led project, GCRE is aligned with many of the rail industry's strategies, visions and objectives. The policy documents considered include the Railway Industry Association's Rail 2050 Manifesto; the Rail Supply Group's strategy for the rail supply chain, Fast Track to the Future; the Rail Delivery Group's Rolling Stock Strategy; and the Rail Safety Standards Board's Capability Delivery Plan. These documents make recommendations to policy-makers, identify key areas which need attention and set out the industry's goals for the medium and long term.

GCRE aligns with many of these themes, such as the decarbonisation and digitalisation of the railways; enabling growth within the industry; facilitating investment and exporting capabilities; and accelerating the uptake of new technologies.

Industrial Strategy: Rail Sector Deal (DfT & BEIS, 2018)

The Rail Sector Deal aims "to transform the rail sector by taking actions to increase the use of digital technology, boost productivity, improve the service received by those who use our railways and build the skills of the UK workforce to capitalise on these opportunities".

The Rail Sector Deal aims to deliver improvements in three core areas: the passenger experience, the economy and the rail industry supply chain. These improvements will be based upon five key commitments:

- **Ideas:** promoting R&D and ensuring innovation can take place in all kinds of companies.
- **People:** introducing new skills and improving upskilling efforts.
- **Infrastructure:** focusing on the roll-out and improvement of digital infrastructure.
- **Business Environment:** creating the right conditions for investment in the UK rail industry.
- **Places:** supporting communities and opening up opportunities to all.

GCRE will greatly contribute to these themes by providing a platform where ideas can be transformed into tangible solutions, new skills can be acquired, and businesses can develop new offerings.

Net Zero: The UK's contribution to stopping global warming (Committee on Climate Change, 2019) & Decarbonising Transport: setting the challenge (Department for Transport, 2020)

The UK Government announced in 2019 its commitment to become carbon neutral by 2050. More recently, in March 2020, the DfT published 'Decarbonising Transport', which explains Government's strategy in developing a Transport Decarbonisation Plan (TDP) which will be published later this year.

Since the Climate Change Act was passed in 2008, great progress has been made to reduce greenhouse gas (GHG) emissions, with a reduction of 30% in the decade to 2018. However, reaching a net-zero economy by 2050 will require accelerated efforts. Greenhouse gas (GHG) emissions will need to be cut in many industries, including transport. In fact, the contribution of transport to GHG emissions cannot be understated – in 2017, it was the largest source of emissions in the UK. Whilst other elements have reduced their pollution levels in recent times (since 1990, industry, power and waste have reduced their GHG emissions by over 50%), emissions arising from surface transport have increased.

Given rail is one of the most carbon-efficient modes of transport, particularly for medium and long distances, it has a key role to play in the decarbonisation of the transport industry as a whole. Some of the key topics mentioned in the documents are the need for further electrification programmes, the importance of adopting new technologies and the need for investment in both rail infrastructure and rolling stock. GCRE will contribute towards all of these by providing a testbed for new, low-carbon technologies and other innovations in a short timescale.

Williams Rail Review

The Williams Rail Review was established in September 2018 to analyse the UK railways operating model and organisational structure. A number of evidence papers on different topics have been published to date, whilst a final report was originally due in Autumn 2019 and is expected soon.

As indicated by the review's Terms of Reference (ToR), its purpose is to make recommendations on the potential organisational and commercial frameworks which would help the UK Government deliver its vision of a world-class railway. GCRE will be directly linked to some of the themes mentioned in the ToR, including a railway that can offer good value fares for passengers while keeping costs down for taxpayers; improved industrial relations, reduced disruption and improved reliability; and a rail sector with the ability to respond to future challenges and opportunities. GCRE will greatly contribute to all these areas.

UKRRIN

When, as a result of the Railways Act 1993, British Rail was privatised into separate infrastructure, train operating and rolling stock leasing companies, the sector lost its focus for a national research, development, testing and commissioning facility.

Over the last 25 years, there have been various structural changes and Government policies which have sought to encourage innovation through research and development, and to maintain a base level of testing "at scale" capability. Most recently the strands of academic research and industry-led technical development and testing have been brought under the umbrella of The UK Rail Research and Innovation Network (UKRRIN).

UKRRIN is designed to create powerful collaboration between academia and industry, aiming to provide a step-change in innovation in the sector and

accelerate new technologies and products from research into market applications globally. The initiative is being built on the development of three new Centres of Excellence formed by a consortium of universities, in collaboration with existing industry testing and trialling facilities such as Network Rail's Rail Innovation and Development Centres.

The new centres are in Digital Systems (led by University of Birmingham), Rolling Stock (led by University of Huddersfield, in partnership with Newcastle University and Loughborough University) and Infrastructure (led by University of Southampton, in partnership with the University of Nottingham, the University of Sheffield, Loughborough University and Heriot-Watt University). Some £92m of total funding has been committed to the centres by the UK Government and leading industrial partners. The Centre of Excellence in Testing (CET) is led by Network Rail and incorporates access to existing at-scale 'test' facilities, including Network Rail's Rail Innovation & Development Centres (RIDCs) in Melton in Leicestershire and Tuxford in Nottinghamshire, Transport for London (Acton and Stratford), and Quinton Rail Technology Centre (QRTC) at Long Marston building on the expertise of the recognised teams at these locations.

However, none of these 'test' facilities is purpose built, but instead use redundant sections of the main-line which have been adapted for certain testing functions. There are also significant capacity and capability issues which will be detailed in the Case for Change. GCRE will be able to provide a purpose-built testing facility at which all levels of testing, from idea to production can take place, with a particular focus on higher TRL validation, certification and commercialisation.

Network Rail and HS2 – GovCo Strategy Context

A Government-owned company, or 'GovCo', operates as an arms-length public firm with the goal of delivering specific strategic and policy goals. This kind of body is commonly used in the UK for large organisation with long-term goals, such as Network Rail Infrastructure Ltd (subsidiary of Network Rail) or Ordnance Survey Ltd as well as for large-scale infrastructure projects, including HS2 (HS2 Ltd) or Crossrail (Crossrail Ltd).

HS2 Ltd is an executive non-departmental public body sponsored by the Department for Transport. It is funded by grant-in-aid from the UK Government. HS2 Ltd's primary responsibility is developing and promoting the UK's new high-speed rail network. HS2's strategic position is that of a project that will transform travel and contribute to levelling up the UK. It is expected that HS2 will support the creation of nearly 500,000 jobs and 90,000 homes around the country. Its three core benefits are connectivity, capacity and carbon emission savings – all of which are aligned with wider Government policy strategies.

Network Rail Infrastructure Ltd is a public-sector company operating as a regulated monopoly. It is funded through a mix of direct grants from the UK and Scottish Governments, charges levied on train operators using the network, and income – primarily from commercial property. Network Rail's purpose is to enable the movement of people and goods, hereby supporting the UK's economic prosperity. Its vision is 'putting passengers first', which they are doing by pushing for further devolution, better responding to local needs and reducing bureaucratic barriers.

Wales & Local Policy Context

The Welsh Government has released many strategies in recent years regarding the economy, transport and the future of Wales. These include the National Strategy, the Economic Action Plan and the Well-being the Well-being of Future Generations (Wales) Act 2015. All of these contain ambitious policy goals which GCRE will contribute towards.

GCRE also touches on more localised policies, such as Our Valleys, Our Future the Neath Port Talbot and Powys Local Development Plans or the Powys Economic Development Strategy.

GCRE will help to create a prosperous community in a deprived part of Wales by providing modern infrastructure and allowing people to develop their skills, ultimately creating a resilient community and reducing inequalities.

National and local economic context - National economic context

Prior to the COVID-19 pandemic and as of Q1 2020, the UK's economy had been performing well in recent times. The latest House of Commons Library Economic Indicators release (February 2020)9 suggested that, although economic growth was sluggish in Q4 2019, the labour market was very strong. The unemployment rate was continuing to fall and stood at 3.8% in December 2019, its lowest point since the recession and close to the UK's all-time low of 3.4% in 1973. The employment rate at the end of the quarter was 76.5%, up by 0.7 percentage points from the previous year. Additionally, average earnings were finally exceeding pre-financial crisis levels. Overall, the UK's GDP grew by 1.4% in 2019.

causing significant increases in unemployment and will likely lead to a severe recession.

The Rail Sector and the UK Economy

The rail sector already makes a significant contribution to the UK economy estimated at 2.3% of UK economic output (See Box 1). The UK Government aims to grow rail's economic contribution in the UK and for the sector to be a driver of growth and a world-leader in advanced rail technology.

Building on the UK Industrial Strategy, the Rail Sector Deal (2018) sets out a new approach to the rail industry and the government working in partnership to transform the rail sector by taking actions to increase the use of digital technology, boost productivity, improve the service received by railway users and build the skills of the UK workforce.

A lack of certainty in the UK rail market has previously been cited as a major factor in contributing to: a lack of incentive to innovate; a lack of recruitment/training and a talent flight from the UK (leading to a shrinking skills base); a disincentive to potential new entrants; and, risk that a lack of competition leads to monopolistic tendencies amongst suppliers and ultimately higher prices. Such impacts impose a cost to the UK economy and reduce productivity. For example, it has been estimated that skills shortages and gaps to rail industry employers costs the UK £206 million per year.

Rail-related industries also make a significant contribution to the Welsh economy. Rail contributes an estimated £1.14bn to the economy, equivalent to 1.95 percent of Welsh GVA. Most of this contribution comes from the rail supply sector rather than the railway system itself. The Welsh rail system GVA as a share of regional GVA is low, relative to other regions, at 0.32 percent, whereas the contribution of the rail supply sector is high at 0.98 percent.

GVA per job in the rail supply sector is above all regional averages, with a 20% excess seen across the UK, and 45 percent-plus leads in Wales, the North East and East Midlands. The rail supply sector makes a significant contribution to Welsh economic output but a lesser contribution to employment. Rail supply sector jobs account for 0.72 percent of all UK jobs but only 0.56 percent of employment in Wales.

The Economic Contribution of UK Rail A study by Oxford Economics (2018), for the Railway Industry Association (RIA), investigates the support provided to UK GDP, jobs and taxes by the country's rail-related industries, comprising:

- The UK railway network/system,
- The whole of the UK-based supply chain for the railway system (and for railways systems overseas); and
- Caterers operating at railway stations and the supply chain for those retail outlets.

Activity 'induced' by the wage-funded spending of staff working in these industries is also included.

The study finds that, taking all the above into consideration, rail related activity in the UK supported approximately:

- £36bn of GDP equivalent to approximately 2.3 percent of UK economic output
- 600,000 jobs equivalent to 1.7 percent of national employment
- £11bn in tax revenues
- £68,900 average GVA per job, some 50 percent above the UK average
- 2.2 jobs supported in the UK rail supply sector for every job on the UK railway system
- Railway-related impact GVA (£bn) as a share of regional GVA

There are significant regional variations in the contribution of rail-related industries to economic output. Railway-related industries contributed £1.14bn of economic output for Wales, equivalent to approximately 3 percent of the UK rail-related GDP and 1.95% of total Welsh economic output.

The rail industry is a potential growth sector for Wales. KeolisAmey has committed to revitalising the network, providing new services and rolling stock, innovative solutions and a significant programme of station investment. This includes a commitment from 2023 of a £800m investment toward ensuring that 95% of journeys are on new trains (with more than half the rolling stock being assembled in Wales).

As well as creating more than 600 new jobs through investment in the rail system, Keolis UK has also moved its headquarters from London to a new office in Cardiff in 2020. Meanwhile, Amey opened a new design hub in Cardiff in 2019 offering consultancy services, thereby creating a further 60 jobs.
CAF has invested nearly €40 million in a new plant located at the Celtic Business Park at the Llanwern steelworks site near Newport. The plant is designed for the manufacture of all types of rolling stock: for electric and diesel multiple units (EMUs and DMUs), trams and high-speed trains.

Local economic context – Macro-economic indicators

The proposed site for a testing facility is at the head of the Dulais Valley and straddles the local authority boundary between Powys and Neath Port Talbot.

Generally, Powys presents a healthier economic outlook than Neath Port Talbot, which tends to not perform as well compared to Powys, Wales and Great Britain. Neath Port Talbot's Gross Value Added (GVA) per head of £19,117 and Powys' figure of £17,026 are considerably lower than Wales' £20,738 and Great Britain's £28,912 (2018 figures). Residence-based gross weekly earnings in Neath Port Talbot in 2019 were also significantly lower at £523.5, whilst Powys' average of £539.9 was closer to the Wales figure of £540.7 but far from the Great Britain average of £587. Workplace-based gross weekly earnings reveal a different picture, at £507.7 in Powys and £613.4 in Neath Port Talbot, whilst the Wales and Great Britain figures experience little variation at £535.0 and £586.5, respectively.

Socio-economic context

The Welsh Index of Multiple Deprivation (WIMD) 2019 indicates that the South Wales Valleys, in which GCRE will be located, are an area with very high levels of deprivation.

Notwithstanding that, the three LSOAs in which Nant Helen site lies are in the 60-80% most deprived and 40-60% most deprived, respectively, performing comparatively well within the South Wales Valleys context. The three locations show similar results in general, apart from one LSOA which ranks in the 20% most deprived for 'Access to Services'.

Skills

The residents of the two local authorities present different skills levels. Data gathered between January and December 2018 show that Neath Port Talbot performs comparatively poorly, as only 29.2% of residents in the local authority have obtained National Vocational Qualifications (NVQ) Level 4 and above. This compares to 35.3% in Powys, 35.4% in Wales and 39.2% in the UK. Meanwhile, 11% of Neath Port Talbot residents had no NVQ qualifications, compared to just 6.5% in Powys, 8.6% in Wales and 8% in the UK.

Key industries

The two local authorities where the site is located, Powys and Neath Port Talbot, have been compared to Wales and the UK to determine their location quotients. Location quotients show the concentration of jobs in one area compared to a wider region or country. Compared against Wales, Powys has a higher location quotient in wholesale trade; and professional, scientific and technical roles. Meanwhile, Port Talbot stands out for manufacturing; transport & storage; and mining & quarrying.

Overall, the most prominent industry in the combined area formed by both local authorities is manufacturing, as defined by its location quotient compared to the wider UK. The long tradition of engineering industry in Neath Port Talbot is evident by the prominence of this sector and the presence a number of international manufacturing companies. GCRE will complement the area's existing engineering capabilities by providing new opportunities to grow in the railway sector.

Summary of local economic need and job creation

As the UK and Welsh economy experiences a low carbon transition, it will be important that communities impacted by this process experience a "fair and just transition"11 and are not left behind. The Nant Helen opencast coal mine and washery on the proposed GCRE site currently supports around 170 jobs, according to Celtic Energy, who also claim that 90% of those employed live within 10km of the mine – which is likely to be substantially higher than GCRE. The losses of these jobs will need to be mitigated as the licensing period for coaling activity expires in 2021.

GCRE could contribute to improving the incomes and skills of the local area. Many of these jobs will be high skilled, although not all will come to the immediate local community at first due to new capabilities being required. In addition, the site could provide training opportunities and employment opportunities through partnerships with local Further Education institutions such as Neath College and Coleg y Cymoedd and with Universities and employers across Wales and the UK.

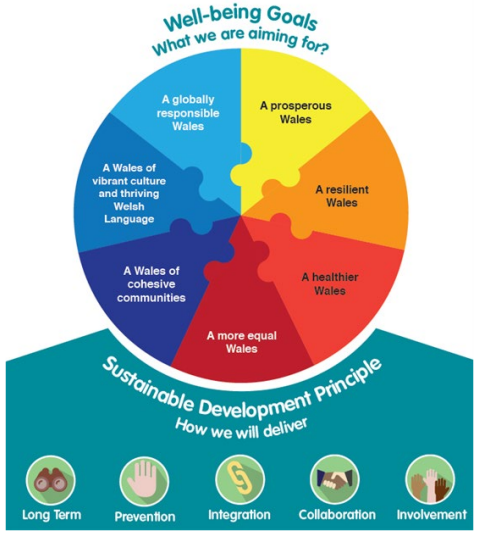
The economic benefit to Wales is potentially significant. During the construction phases, it is estimated that c.240 construction jobs will be created. If each element of the facility and the R&D centre is realised, once operational the site is expected to sustain c. 180 jobs – 60 of which would be academic.

In a recent communication to Welsh Government, Professor Clive Roberts on behalf of the University of Birmingham and the wider UK Rail Research and Innovation Network (UKRRIN) highlighted that the Birmingham Centre for Railway Research and Education (BCRRE) has very strong established relationships with the Welsh HE sector with existing railway, energy and transport research partnerships with Welsh Universities. Professor Roberts confirmed that there is a clear opportunity to help develop a 'Railway & Transport Innovation Accelerator' that would sit alongside the GCRE. Form his perspective, there is a clear and compelling case to establish an independently funded (i.e. not wholly funded by the Welsh Government or UK Government) Research Development and Innovation (RD&I) capability alongside a long term HE/industry collaborative research and education programme at the heart of the GCRE project. This would offer multiple synergistic benefits and create circa 60 additional high quality jobs on site.

As well as these potential research jobs, a large percentage of the testing jobs will be ‘additional’ to Wales and the UK because the activities would not be undertaken elsewhere in Wales and the UK.

The project will also create roles in site and facilities management, security, rail infrastructure maintenance, train maintenance and hospitality for which there are already skills within the workforce in South Wales.

The facilities would also attract regular visitors to the area throughout the year as engineers, academics and support teams use the site on a project by project basis, providing a potential boost to local service industries.



Well-Being of Future Generations (Wales) Act 2015

UN Sustainable Development Goals

- The project aligns strongly with the UN Sustainable Development Goals and the Well-being of Future Generations Act in a number of clear ways. Key amongst these are:

- Support people and businesses to drive prosperity
- Tackle regional inequality and promote fair work
- Drive sustainable growth and combat climate change
- Build ambition and encourage learning for life
- Equip everyone with the right skills for a changing world
- Deliver modern and connected infrastructure
- Promote and protect Wales' place in the world

- The Prosperity for All: Economic Action Plan overlaps with the UK Industrial Strategy:

"there are clear overlaps between the Industrial Strategy's Grand Challenges and our Call to Action, between the Industrial Strategy's five foundations and the objectives of out plan and shared understanding that lagging productivity is a core weakness of our economy." Economic Action Plan. p.4

CALLS TO ACTION: PROSPERITY FOR ALL: ECONOMIC ACTION PLAN

Llywodraeth Cymru
Welsh Government

- Decarbonisation
- Innovation, entrepreneurship and headquarters
- Exports and trade
- High quality employment, skills development and fair work
- R&D, automation and digitalisation

GRAND CHALLENGES: HM GOVERNMENT INDUSTRIAL STRATEGY: Building a Britain Fit for the Future

INDUSTRIAL STRATEGY

- Clean growth
- Future of Mobility
- Ageing Society
- AI & Data Economy

Planning and Local Development Plan Policy

This section sets out the national and local planning policy to be considered in the determination of the application.

Section 70(2) of the Town and Country Planning Act 1990 and requires that *"in dealing with an application for planning permission" a local planning authority "shall have regard to the provisions of the development plan, so far as material to the application".* Section 38(6) of the Planning and Compulsory Purchase Act 2004 adds "i*f regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise.*"

The Development Plan is defined by Section 38(3) of the Planning and Compulsory Purchase Act 2004 (in Wales) as *"the regional strategy for the region in which the area is situated (if there is a regional strategy for that region) and the development plan documents (taken as a whole) which have been adopted or approved in relation to that area".*

The Development Plan for the planning application comprises the following:

- The Powys Local Development Plan (2011-2026), adopted in April 2018.
- The Neath Port Talbot Local Development Plan (2011-2026), adopted in January 2016.

The key policies from both Development Plans are considered to be the following:

Powys Policy:

SP7 - Safeguarding of Strategic Resources and Assets
DM2 – The Natural Environment
DM4 – Landscape
DM8 – Minerals Safeguarding
DM9 – Existing Mineral Workings
DM10 – Contaminated and Unstable Land
DM13 – Design and Resources
DM14 – Air Quality Management

Neath Port Talbot Policy:

SP1 – Climate Change
SP2 – Health
SP3 – Sustainable Communities
SP4 – Infrastructure
SP6 – Development in the Valleys Strategy Area
SP11 – Employment Growth
SP14 – The Countryside and the Undeveloped Coast
SP15 – Biodiversity and Geodiversity
SP16 – Environmental Protection
SP17 – Minerals
SP19 – Waste Management
SP20 – Transport Network
SP21 – Built Environment & Historic Heritage
SC1 – Settlement Limits
I1 – Infrastructure Requirements
EC5 – Employment Uses in the Valleys
TO4 – Walking and Cycling Routes
EN2 – Special Landscape Areas
EN6 – Important Biodiversity and Geodiversity Sites
EN7 – Important Natural Features

Planning and Local Development Plan Policy

EN8 – Pollution and Land Stability
M1 – Development in Mineral Safeguarding Areas
M3 – Development in Mineral Buffer Zones
RE2 – Renewable and Low Carbon Energy in New Development
W3 – Waste Management in New Development
TR1 – Transport Proposals
TR2 – Design and Access of New Development
TR3 – Safeguarding of Disused Railway Infrastructure
TR4 – Safeguarding Freight Facilities
BE1 – Design

Planning and Local Development Plan Policy

As required by Section 70(2) of the Town and Country Planning Act 1990 and Section 38(6) of the Planning and Compulsory Purchase Act 2004 applications are to be determined in accordance with the Development Plan unless material considerations indicate otherwise.

The other policy and guidance documents that form material considerations in the determination of this planning application are:

- Planning Policy Wales (Edition 10)
- National Development Framework (2020-2040): Consultation Draft (2019)
- The Wales Spatial Plan (2008)
- Technical Advice Notes (TAN)
    - TAN 5 – Nature Conservation and Planning
    - TAN 11 – Noise
    - TAN 12 – Design
    - TAN 18 – Transport
    - TAN 24 – Economic Development
    - TAN 24 – The Historic Environment

Adopted Supplementary Practice Guidance including the following:

Powys:
- Biodiversity and Geodiversity (October 2018)
- Landscape (April 2019)

Neath Port Talbot:
- Planning Obligations (October 2016)
- Pollution (October 2016)
- Open Space and Greenspace (July 2017)
- Renewable and Low Carbon Energy (July 2017)
- Design (July 2017)
- Landscape and Seascape (May 2018)
- Biodiversity and Geodiversity (May 2018)
- The Historic Environment (April 2019)

Planning and Local Development Plan Policy

Planning Policy Wales Edition 10 (2018)

Published in December 2018, the tenth edition of Planning Policy Wales (PPW10) sets out the land use planning policies of the Welsh Government. The key element of PPW10 that sets it apart from the previous version is the fact that it has been prepared in the light of the Well-being of Future Generations (Wales) Act 2015 (WFGA), the objectives of which represent the central thread running through the document. The Ministerial Foreword expresses how PPW10 will "deliver the vision of the Wales we want set out in the Well-being of Future Generations Act" and the extent to which "PPW plays a significant contribution to the improvement of well-being in all its aspects." The central thread of the WFGA remains within the PPW10, which also focuses on the new, multi-faceted concept of Placemaking. This relates to the delivery of Sustainable Places to support the well-being of people and communities across Wales. The interlinkages between key planning principles (such as growing the economy in a sustainable manner, making the best use of resources, facilitating healthy and accessible environments, creating and sustaining environments, and maximising environmental protection) and the "five ways of working" (prevention, long term, collaboration, integration and involvement) are identified to be integrated within the plan-making and development management processes. It is stated that this approach will contribute both to Placemaking and well-being.

PPW10 reaffirms the presumption in favour of sustainable development and defines sustainable development as "the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the Well-being Goals".
PPW10 highlights the importance of proposals taking a placemaking approach, specifically, guiding proposals to take a holistic approach when planning and designing development and spaces, focusing on positive outcomes.

The concept of placemaking should be considered at all levels including at a global scale through paying key consideration to climate change; and also, at a more local scale, considering the amenity impact on neighbouring properties and people.

In line with the principles of the Well-being Act, PPW10 is organised around four key themes; 'Strategic and Spatial Choices', 'Active and Social Places', 'Productive and Enterprising Places' and 'Distinctive and Natural Places'. The elements of most relevance to the proposed development in this case are outlined further below. Chapter 3 'Strategic and Spatial Choices' focuses on placemaking and strategic development. Paragraphs 3.3 - 3.313 of the PPW10 set out five key objectives to achieving good design: access and inclusivity; environmental sustainability; character; community safety; movement.

Paragraph 3.7 sets out that "developments should seek to maximise energy efficiency and the efficient use of other resources (including land), maximise sustainable movement, minimise the use of non-renewable resources, encourage decarbonisation and prevent the generation of waste and pollution."

Paragraph 3.9 sets out that "the special characteristics of an area should be central to the design of a development. The layout, form, scale and visual appearance of a proposed development and its relationship to its surroundings are important planning considerations."

Paragraph 3.30 sets out the Sustainable Management of Natural Resources (SMNR) framework as outlined within The Environment (Wales) Act 2016. PPW10 states that, "amongst other considerations, the planning system can contribute to the SMNR approach through ensuring resilient locational choice for infrastructure and built development, taking actions to move towards a circular economy and facilitate the transition towards economic decarbonisation".

Building Better Places

In July 2020, Welsh Government published its policy position on how the planning system can assist in the COVID-19 recovery period. 'Building Better Places' is intended to sit alongside PPW and is a key consideration in both plan preparation and development management. 'Building Better Places' expands on the recent letter issued to Chief Planning Officers from Julie James (Minister for Housing and Local Government) in July 2020 which acknowledges that the economic consequences of the COVID-19 pandemic are predicted to be severe and felt across all sectors, including those in construction and the built environment. 'Building Better Places' emphasises both the primacy of the plan led system in Wales but also the need to have places and place-making at the heart of the recovery process. The policy agenda seeking to deliver better places and placemaking develops the principles already enshrined in PPW. The pandemic has highlighted the importance of the need for good quality places for people to live, work and relax. 'Building Better Places' seeks to ensure that the economic hardship owing to the pandemic does not outweigh the above principles and policies.

It is clear that an immediate supply of development land is essential if we are to build the better places envisaged by Welsh Government and lead the recovery that is desperately required. New development delivering positive social and economic outcomes as well as addressing climate change concerns needs to be happening on the ground in the short term and can't simply await the completion of the LDP review process in five years time.

Welsh Government has recognised this issue and in respect of development management, 'Building Better Places' states "PPW and the NDF can be used directly in the decision making process, particularly where an LDP is silent or out-of-date on an issue. The WG will support decisions taken in this context, particularly in the short-term until an LDP is adopted". This is a very important concession and allows for new development in the short term that truly embrace the principles and policies of delivering better places and placemaking.

The guidance includes a Welsh Government commitment to follow through on infrastructure obligations which will go a long way in ensuring that the developments envisioned are delivered and the wider public benefits are maximised.

It also emphasises that development management decisions should focus on creating healthy, thriving active places with a focus on a positive, sustainable future for our communities. The planning system has an important role in supporting healthier lifestyles and reducing inequalities. This includes both direct and indirect opportunities such as the allocation of land for health facilities, ensuring good design and barrier free development, jobs and skills among other considerations.

Planning and Local Development Plan Policy

In terms of the provision of new infrastructure, Paragraph 3.58 states that, "planning authorities should, in conjunction with key providers, take a strategic and long-term approach towards the provision of infrastructure as part of plan making. This may involve collaboration between planning authorities and key infrastructure providers to ensure infrastructure provision is sustainable".

Chapter 4 'Active and Social Places' with regards to transport, it states that people should have access to jobs and services through more efficient and sustainable journeys, by walking, cycling and public transport. It further states that "new development should prevent problems from occurring or getting worse such as…the reliance on the private car and the generation of carbon emissions."

It is also noted that land use and transport planning should be integrated to "minimise the need to travel, reduce dependency on the private car and enable sustainable access to employment, local services and community facilities".

It is a priority of Welsh Government to reduce reliance on the private car and support a modal shift to walking, cycling and public transport. PPW10 states that "Delivering this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the Well-being of Future Generations Act." PPW10 also encourages the use of Ultra Low Emission Vehicles (ULEVs) and the provision of ULEV charging points as part of new development. Paragraph 4.1.39 states that "Where car parking is provided for new non-residential development, planning authorities should seek a minimum of 10% of car parking spaces to have ULEV charging points".

Chapter 5 Productive and Enterprising Places covers the economic components of placemaking and states that "a more Equal Wales can be achieved through promoting sufficient employment and enterprise opportunities for people to realise their potential and by recognising and building on the existing economic strengths of places to assist in delivering prosperity for all."

PPW10 states that "the potential of new/improved transportation infrastructure to create new or renew hubs of economic activity should be realised with careful master-planning around sustainable transport nodes and interchanges to create places which can be easily accessed by sustainable transport and which capitalise on their location and the opportunities which this presents."

Paragraph 5.3.1 states that "the provision of sustainable transport infrastructure is essential in order to build prosperity, tackle climate change, reduce airborne pollution and to improve the social, economic, environmental and cultural well-being of Wales" and that "the planning system should facilitate the delivery, decarbonisation and improvement of transport infrastructure in a way which reduces the need to travel, particularly by private vehicles, and facilitates and increases the use of active and sustainable transport".

PPW10 sets out that "Planning authorities should support necessary transport infrastructure improvements, where it can be demonstrated that such measures are consistent with Welsh Government policy to encourage and increase use of sustainable transport and reduce reliance on the private car for daily journeys."

In relation to transport and employment, paragraph 5.4.13 states that planning authorities should "align jobs and services with housing and sustainable transport infrastructure, to reduce the need for travel, and dependency on travel by car".

Planning and Local Development Plan Policy

Chapter 6 Distinctive and Natural Places covers environmental and cultural components of placemaking. PPW10 sets out how development should protect the special characteristics of the natural built environment including the historic environment, green infrastructure, landscape biodiversity and ecological networks.

Green infrastructure is considered core to the creation and management of distinctive and natural places. PPW10 states that green infrastructure assets and networks should be protected owing to their multi-functional roles such as providing benefits for the health and well-being of communities as well as the environment.

Paragraph 6.4.3 gives focus to biodiversity and ecological networks and sets out a number of considerations for development proposals to consider. This includes that development proposals must consider the need to "support the conservation of biodiversity, in particular the conservation of wildlife and habitats".

Technical Advice Notes

TAN5: Nature Conservation and Planning (2009) provides advice on how planning proposals should contribute to protecting and enhancing biodiversity and geological conservation. In cases of EIA development, TAN 5 sets out that it is essential to ensure that opportunities for enhancements are explored through the EIA process.

TAN 11: Noise (1997) contains guidance related to assessing the noise impacts of proposed development and outlines mitigation measures which can be introduced to control noise.

TAN 12: Design (2016) contains the design principles that should be considered for any new development. It sets five considerations which must be included within the design of new buildings as follows:

1. Accessibility: Including ease of access for all into the development and to all elements within the site.
2. Character: Including sustaining or enhancing local character.
3. Community Safety: Including securing through natural surveillance.
4. Environmental Sustainability: Including achieving efficient use and protection of natural resources.
5. Movement: Promoting sustainable means of travel."

TAN 18: Transport (2007) offers guidance on the integration between the planning system and transport. It contains detailed guidance on parking, active travel, public transport and major transport infrastructure as well as information on how transport impacts should be assessed within Environmental Statements, Transport Assessments/Statement and Travel Plans. The TAN also sets out that planning authorities should allocate land for rail infrastructure. The guidance states that where major development has been permitted in phases, reasonable public transport provision should be in place before occupation of each phase to ensure travel by car is not necessary at the outset.

TAN 23: Economic Development (2014) provides guidance on the role of land use planning in generating wealth, jobs and income. TAN23 states that "the economic benefits associated with development may be geographically spread out far beyond the area where the development is located and as such it is essential that the planning system recognises, and gives due weight to, the economic benefits associated with new development."

TAN 24: The Historic Environment (2017) aims to provide guidance as to how the planning system should consider the historic environment during plan-making and decision-making. It provides guidance on all aspects of the historic environment.

The Wales Spatial Plan

This sets out the planning agenda for Wales at the spatial level. Its main principle is that development should be sustainable, by improving the well-being and quality of life for Wales. The plan recognises that in the context of responding to and mitigating the effects of climate change, the WSP encourages measures to reduce the need to travel by co-locating jobs, housing and services and changing behaviour in favour of 'greener' modes of travel, such as car sharing, public transport, walking and cycling. The site is located within the South-East Wales Capital Region. The objectives for this area include making better use of the existing transport infrastructure and delivering more sustainable access to jobs and services. The proposed development assists in achieving these objectives.

The National Development Framework – Consultation Draft (2019)

The new National Development Framework (NDF) is set to replace the Wales Spatial Plan, providing a framework for development between 2020 and 2040. The NDF's aim is to address key national priorities through providing the direction for where we should invest in infrastructure and development for the greater good of Wales and its people.
Chapter 3 NDF Outcomes The draft NDF is outcome-led and aims to develop a Wales where people live and work in:
1. connected, inclusive and healthy places
2. vibrant rural places with access to homes, jobs and services
3. distinctive regions that tackle health and socio-economic inequality through sustainable growth
4. places with a thriving Welsh Language
5. towns and cities which are a focus and springboard for sustainable growth
6. places where prosperity, innovation and culture are promoted
7. places where travel is sustainable
8. places with world-class digital infrastructure
9. places that sustainably manage their natural resources and reduce pollution
10. places with biodiverse, resilient and connected ecosystems.
11. places which are decarbonised.

Principle of Development

The most recent planning history for the site includes the extant permissions for the restoration (19/1899/REM) and complementary earthworks at Nant Helen (20/0738/FUL [Powys] and P/2020/0362 [Neath Port Talbot]). The purpose behind these consents is to restore and ready the site for re-use.

The proposed rail testing facility would provide a transformational, hi-technology and cleaner industrial, research and development operation to the locality that would be a wide ranging and highly economically beneficial re-use of a large proportion of the site.

A core principle of achieving sustainable development is using previously developed land in preference to greenfield land. Planning Policy Wales defines previously developed land as that: *'which is or was occupied by a permanent structure (excluding agricultural or forestry buildings) and associated fixed surface infrastructure. The curtilage (see note 1 below) of the development is included, as are defence buildings and land used for mineral extraction and waste disposal (see note 2 below) where provision for restoration has not been made through development management procedures.'*

Note 2 states that: *'this relates to minerals and waste sites which would otherwise remain unrestored after use because the planning permission allowing them did not include a restoration condition. All other such sites will be restored to greenfield status, by the planning condition…'*

Mineral extraction and waste disposal sites are excluded from the definition of previously developed land where there are planning conditions that would secure its return to greenfield status.

Past extents of Nant Helen Surface Mine have been restored and the approved restoration scheme means that this part of the site is not previously developed land. However, the present-day extent of the Onllwyn Washery would satisfy the definition of previously developed land and the re-development of it for industrial activity should be considered acceptable in principle.

The land use strategy for the area, and the site's position within this, is defined by each local development plan's proposals map. The site area falling within Powys is shown on Proposals Map 18. Further detail is shown on Inset Maps 58E (Ystradgynlais), 58F (Ystradgynlais), 1 (Abercrave) and 14 (Coelbren).

The site is largely contained within the land designation for Nant Helen Surface Mine, 'Minerals: Permitted Working Area (M1)' and 'Minerals: Permitted Working Area Buffer Zone (M1, DM9)' which are concerned with controlling the surface coal mining operations and interface between new development but are not relevant to the proposed development given that coal mining operations will have already ceased and the land restored. A proportion of the site extends beyond the existing coal mining operations into land to the north, east and south which is designated under 'Coal Resource Safeguarding Area (SP7, DM8)' & 'Sandstone Category 2 Resource Safeguarding Area (SP7, DM8)'. There is a presumption against the use of coal as energy and therefore developing in the safeguarding area is acceptable in principle. Sandstone is still a valuable resource, but the geometry of the proposed earthworks associated with the proposal is such that it is highly unlikely that the resource would be sterilised, furthermore the future transformational development that the proposal could potentially enable is considered to be in the public interest.

The extent of the site falling within Neath Port Talbot is shown on Proposals Map 6 (countryside) and 7 (Pant y Ffordd, Onllwyn and Banwen).

Accordingly, part of the site is on land designated as 'M2/1 Settlement Protection Zone' which serves to protect settlements against the extent of surface coal mining operations and is not relevant to this proposal. The Washery site is identified as a freight facility, safeguarded under Policy TR4/4. TR4/4 specifically seeks to protect the rail connection and sidings.

Notwithstanding the intent of the earthworks consent to ready the site for a rail and associated industrial activity use, there is not a site-specific Development Plan allocation or other policy for the GCRE and it is thus in policy terms a departure from the Plans.

The introduction into the landscape of rail related infrastructure, buildings and the associated testing and other activity brings with it its own impacts which are different to those that were involved in the earthworks proposals and have been assessed through a scheme-specific EIA for this application. This statement should be read alongside the ES which contains the detail of the assessments and any mitigation necessary as well as an appraisal of the relevant policy context on a topic by topic basis. The ES, together with the journey through specific topics in this Statement on the key topics/considerations matters such as landscape, ground conditions, noise and disturbance, air quality, lighting/dark skies, Biodiversity, transport and other accessibility common land and heritage can all be addressed through a combination of embedded and additional mitigation as explained in the following pages of this section.

This Statement summarises the broad and multi-dimensional socio-economic benefits that could arise through the development at a local, regional, national and beyond level and given these and the fact that it is demonstrated that the proposed development is compatible with the land use strategy for the area and the current industrial use of the land, the conclusion is that the principle of development is acceptable in policy terms in the round and a departure from the plans is justified.

Landscape – Dark Skies

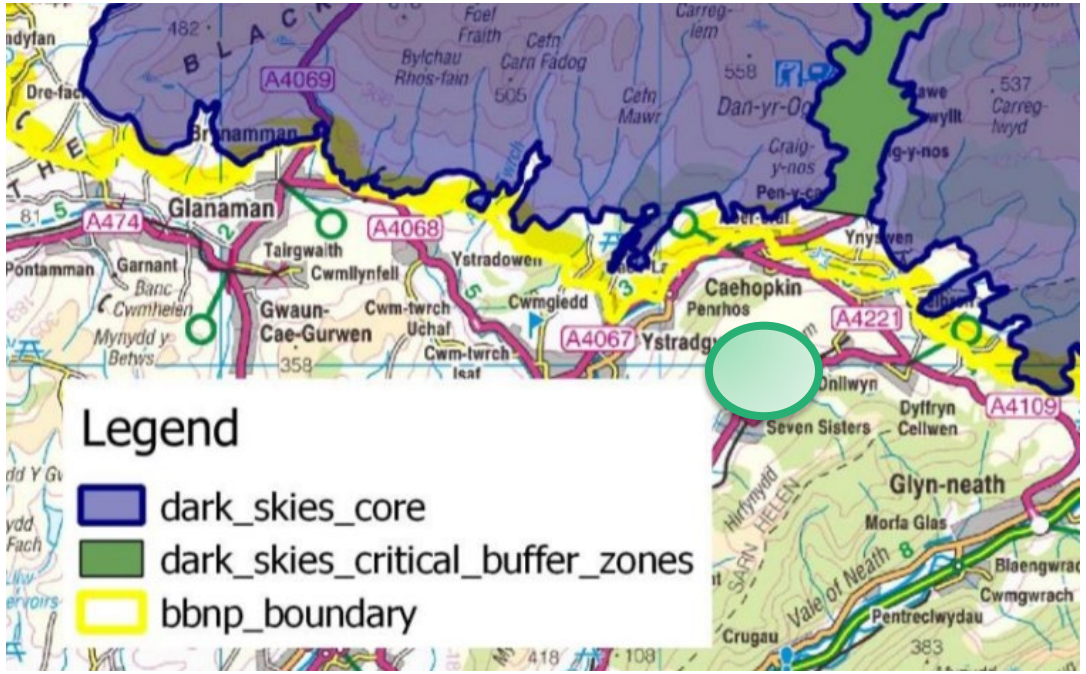
The National Park became an International Dark Skies Reserve in 2013 (one of only 5 in the world). The effects of lighting are controlled under *the Brecon Beacons National Park Authority, Local Development Plan Policy 12, Light Pollution & Obtrusive Lighting Supplementary Planning Guidance (March 2015)* which tackles matters such as light glare, light trespass, intrusion and sky glow all of which either individually or in-combination can negatively impact the immediate and wider landscape and townscape quality. Given the proximity to the National Park, the dark skies context is an important part of the character of the immediate northern backdrop to the application site.

The above guidance establishes that International Dark Skies Reserve identifies 4 distinct regions within and around the National Park, each of which have different constraints on the levels of permanent illumination allowed as follows:

- Core Zone – It is the aspiration that within this area that there will be no additional permeant illumination as a part of new development within this region and that any necessary lighting will not be lit in a manner that increases upward light spill.
- Critical Buffer Zone – It is the aspiration that there will be no lighting projected from the buffer zone into the core zone. Luminaires in the Critical Buffer Zones using lamps greater than 1000 lumens will be expected to be installed as fully shielded.
- Buffer Zone (remainder of the Park area) All new lighting resulting from development within the Buffer zone will be encouraged to be designed and installed to provide lower glare or intensity values, where possible, than that recommended by the institute of Light Professionals for night time Environmental Zones External Zone – (outside the NP park area)

The guidance identifies that the BBNPA will use it and the Lighting Management Plan to provide the basis for discussion with neighbouring LPAs on lessening development proposals potential for light pollution.

The extract below from the SPG highlights that the zones closest to the application site are a buffer zone, with critical buffer zone and core zone ‘fingers’.



Landscape

The Landscape and Visual Impact Assessment work has identified that during construction, it was assessed that there would be significant landscape effects for one of the 20 landscape character areas (LCA) identified within the study area of the LVIA; the Nant Helen Reclaimed Uplands LCA which would be affected through the introduction of construction activity to a restored landscape.

On completion it was assessed that there would be significant landscape effects for three of the 20 LCAs; the Nant Helen Reclaimed Uplands LCA; Wooded Tawe Valley LCA; and Y Mynydd Du LCA.

Effects to the Nant Helen Reclaimed Uplands LCA are as a result of the introduction of large-scale activity across a large proportion of the LCA on a prominent elevated position.

Effects to the Wooded Tawe Valley LCA are as a result of the introduction of urbanising features and train movement to the valley slopes across a small proportion of the overall LCA. It is anticipated that mitigation planting implemented as part of the proposed development as well as the Nant Helen Complementary Restoration Earthworks would reduce effects to non-significant by year 15 once planting is established and reinstates the wooded character of the valley.

Effects to the Y Mynydd Du LCA are as a result of changes to the contextual landscape that would affect the sense of peace and tranquillity at the southern extent of the LCA. It is anticipated that mitigation planting implemented as part of the proposed development as well as the Nant Helen Complementary Restoration Earthworks would reduce effects to non-significant by year 15 once planting is established and begins to screen urban features and passing trains.

In terms of visual effects, viewpoints (VPs) for the assessment were selected in consultation with the Local Authority. The 18 viewpoints were the result of desktop studies and site survey work to identify receptors likely to be affected. Visual receptors include, but are not limited to, recreational users of footpaths and inhabitants of residential properties.

Significant visual effects during construction were identified for a number of receptors as below. All of these are adverse effects.

- Recreational receptors within the National Park: VP1, VP2, VP3, VP4, VP12
- General recreational receptors: VP8, VP9, VP14, VP18
- Residential receptors: VP5, VP16

During operation, the assessment identifies an increased number of viewpoints which would experience significant adverse effects. The increase in significant effects at operation is a result of the increased perceptibility of the proposed development due to the fast movement of trains.

- Recreational receptors within the National Park:VP1, VP2, VP3, VP4, VP11, VP12
- General recreational receptors:VP8, VP9, VP14, VP15, VP18
- Residential receptors:VP5, VP6, VP7, VP9, VP10, VP13, VP16

In the majority of cases, the significance of effect would reduce by year 15 once mitigation planting is established. Effects beyond year 15 would remain for 4 visual receptors as outlined below:

- Viewpoint 2 - View from Ystradgynlais Footpath 64

It is anticipated that Moderate (Adverse) effects would remain beyond year 15 due to the proposed development being visible across a dominant feature of the view.

- Viewpoint 3 - View from Trig point on Cribarth

It is anticipated that Moderate (Adverse) effects would remain beyond year 15 due to the receptors elevated position and therefore the limited effectiveness of mitigation planting.

- Viewpoint 9 - View from NCNR 43

It is anticipated that Moderate (Adverse) effects would remain beyond year 15 due to the close proximity of the proposed development and change in character of the cycleway from this viewpoint to an enclosed wooded corridor.

- Viewpoint 14 - View from Ystradgynlais Footpath 10

It is anticipated that Major (Adverse) effects would remain beyond year 15 due to the close proximity of the Proposed development and therefore dominance of the proposed development in the view.

The strategy for landscaping planting and mitigation is envisaged to reduce significant adverse landscape and visual effects have been accounted for in the year 15 assessment when it is assumed that planting will have established. Planting for the mitigation of operational effects was developed and areas for both visual screening and landscape integration are shown on the figure over page. This plan was developed in conjunction with the project ecologist to ensure that it is appropriate and meets the requirements of any secondary ecological functions.

Descriptions of the function of planting areas are outlined below. The planting areas on Figure 9.14 show the maximum extent of planting, these areas should be developed at detail design to ensure they reflect the local character as closely as possible. The functional requirements for areas shown on the figure over are set out below:

Area L-01

Visual screening planting to mitigate effects from viewpoints 1, 2, 6, 7, 8 and 14.

Area L-02

Visual screening planting to mitigate effects from viewpoints 16, 18 and 17.

Area L-03

Visual screening planting to mitigate effects from viewpoints 17 and 18. Planting to integrate the branch line, platforms and station environs.

Area L-04

Planting to integrate the rail infrastructure, with the surrounding wooded valley character. Design should be developed to work with culverts.

Area L-05

Visual screening planting on bund to mitigate effects from viewpoint 10.

Area L-06

Visual screening planting on bund to mitigate effects from viewpoints 10 and 12.

Area L-07

Planting to integrate buildings at the washery site into the surrounding vegetated landscape. Creates a soft visual buffer for viewpoints 10, 11 and 12. Planting to be limited to immediate area surrounding buildings and not to encroach into existing habitats to the north.

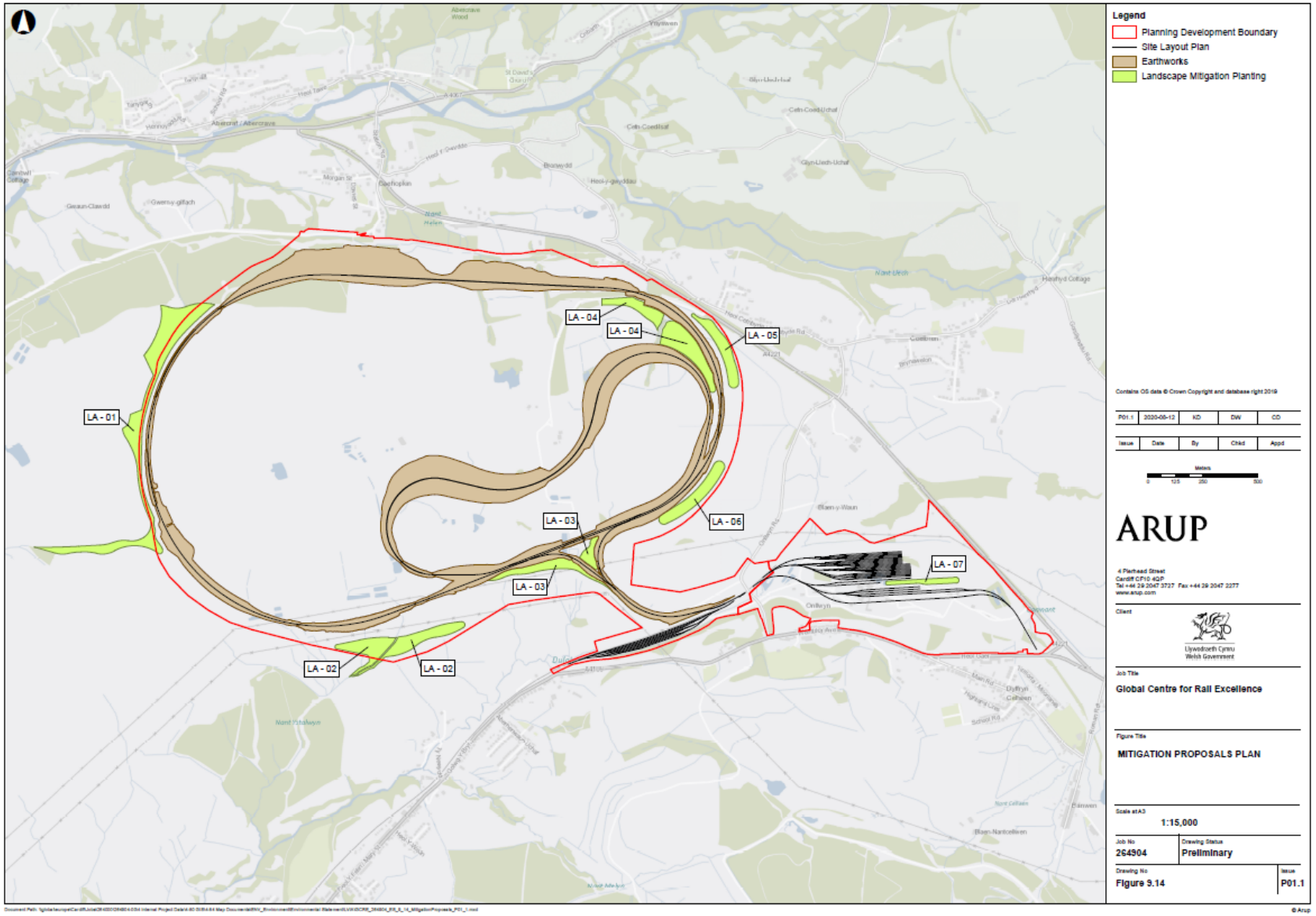
Opportunities

Opportunities for green/brown roofs should be sought on the proposed buildings which would help integrate them into the surrounding landscape and reduce visual effects. However, mitigation afforded by such measures has not been taken into account in the assessment at this stage as design evolution is at outline stage and not yet confirmed.

Due to the operational nature of the site, low maintenance planting is advised for example the use of wildflower turf within swales as this offers quick results in terms of establishment and ecological benefits and is low maintenance, typically requiring one cut per year. Planting to include greater SuDS benefits and visual interest will be designed in detail at the post outline stage, once there is a greater understanding of ground saturation levels etc.

The figure over page illustrates the proposed mitigation for dealing with the previously identified landscape and visual effects and the photomontages from two viewpoints (those selected for the Complementary Earthworks application for consistency) illustrate how effective that mitigation is once the planting has established.

Landscape Mitigation



Landscape Mitigation – photomontage viewpoint 3

Title:	Viewpoint 3 - Existing View	HFoV (°)	90	Visualisation type	1	View direction	South
Date, time:	5 December 2019, 11:31	Scale/ Enlargement factor	96% at A1	Projection	Cylindrical	Camera (lens)	Nikon D750, FFS (Nikon 50mm)

Title:	Viewpoint 3 - Photomontage	HFoV (°)	90	Visualisation type	3	View direction	South
Date, time:	n/a	Scale/ Enlargement factor	96% at A1	Projection	Cylindrical	Camera (lens)	Nikon D750, FFS (Nikon 50mm)

ARUP

Issue	Date	By	Chkd	Apprd
P01	03.09.2020	AG	DW	DB

Job No: 264904

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Figure 9.15 - Photomontages
Sheet 1 of 2

Landscape Mitigation – photomontage viewpoint 16

Title:	Viewpoint 16 - Existing View	HFoV (°)	90	Visualisation type	1	View direction	North
Date, time:	3 December 2019, 11:31	Scale/ Enlargement factor	96% at A1	Projection	Cylindrical	Camera (lens)	Nikon D750, FFS (Nikon 50mm)

Title:	Viewpoint 16 - Photomontage	HFoV (°)	90	Visualisation type	3	View direction	North
Date, time:	n/a	Scale/ Enlargement factor	96% at A1	Projection	Cylindrical	Camera (lens)	Nikon D750, FFS (Nikon 50mm)

ARUP

Issue	Date	By	Chkd	Apprd
P01	10-09-2020	AO	DW	DB

Job No: 264904

Global Centre of Rail Excellence
Figure 9.16 - Photomontages
Sheet 2 of 2

Biodiversity

The key biodiversity issues considered in detail within the ecology chapter of the ES(Chapter 7) include:

- The presence of statutory and non-statutory designated sites, which could be indirectly affected during construction and on completion.
- The presence of notable habitats within the Site, which could be directly and or indirectly affected during construction and operation including from disturbance, degradation, fragmentation and loss.
- The presence of protected and or notable species, which could be directly and or indirectly affected during construction and operation including from harm, mortality, disturbance, habitat loss / degradation and fragmentation / physical barriers to species movements.

'Notable' species and habitats considered in the ES report include species and habitats of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales listed in response to the requirements of Section 7 of the Environment (Wales) Act 2016, in addition to any species considered to be of significance for nature conservation such species listed in red data books, the Royal Society for the Protection of Birds (RSPB) 'Birds of Conservation Concern' lists and or Local Biodiversity Action Plans (LBAPs).

Findings are drawn from a combination of both desk based review and a comprehensive programme of field surveys.

The 'Future Baseline' in terms of biodiversity will include the enhanced retained habitats and newly created habitats as set out in the Nant Helen Complementary Restoration Earthworks habitat creation and enhancement plan. In summary, the habitat creation and enhancement plan includes the creation of a habitat mosaic with the newly created landform, and retained adjacent habitats. Habitats will include acid grassland, enclosed pasture and broadleaved woodland, heathland, peatland-mire complex, wetland and lichen / fungi rich habitats. The diversity of habitats created will encourage the growth and establishment of increased species numbers and diversity including notable flora which occurs in the adjacent, retained habitats. Further enhancements will be facilitated through the long-term management of habitats such as conifer and broadleaved woodland, acid and marshy grassland in addition to wetland habitats.

Providing the measures as detailed in the ES are implemented prior to, during and post construction, it is considered likely that the scale of all impacts from the Project, on protected sites, and the majority of habitats and species, would be reduced sufficiently and there would be no significant residual impacts on the identified ecological receptors.

It is acknowledged that for some habitats i.e. fungi communities, there will initially be an adverse effect as a result of the habitat loss / disturbance. However it is likely that the newly proposed habitats to be created on / off site will establish over 20-30 years and therefore there will be no residual effects after this time. The extent of potential fungi habitat, associated with grassland habitats predominantly, will be greater to compensate for this.
The above habitat establishment will be dependent on the appropriate long term management and monitoring, which will be detailed within an Ecological Management and Monitoring Plan (EMMP).

It is also acknowledged that despite the provision of wildlife crossing to provide safe passage to species within the Site, namely bats, birds, otter and badger, it is unlikely to remove the collision risk completely. However, the residual effects are not considered to be significant to any populations of these species.

The proposed long-term monitoring will confirm any residual effects to habitats and or species, and where necessary identify further mitigation measures that may be required. With the inclusion of enhancement measures which will also be detailed within the EMMP, it is considered likely that there would be an overall positive residual effect from the project for some habitats and species; namely marshy grasslands and wetlands, short grassland and invertebrates.

Hydrology

The study area includes the River Dulais, River Nant Llech, River Tawe, River Dulais and their associated tributaries. Also included are ponds, wetlands, drainage ditches, groundwater dependent ecosystems and groundwater bodies.

Once the Nant Helen Earthworks have been completed, the site will be drained by a series of drainage ditches that feed into drainage ponds before being discharged to surface water features at natural run off rates. There are no areas of the site at risk of flooding.

An outline Construction Environmental Management Plan (CEMP) has been prepared which sets out how the site is to be managed during construction works. Provided the measures set out in the CEMP are followed there would be no significant effects on water resources.

During operation, discharge from the individual facilities within the washery site would be managed to avoid any impacts on water resources .

Ground Conditions

The site has been subject to extensive surface and sub-surface coal mining activities over the past century and therefore, most features identified are related to coal mining.

The existing site has been extensively worked through opencast coal mining operations since c.1946 with opencast activities still ongoing within the Nant Helen Extension site. Several historical collieries have been identified along the northern and southern boundaries of the site. Additionally, various rail tracks and tramways are shown to have crossed through and run along the boundaries of the site.

Due to the history of extensive coal mining activities it is necessary to implement mitigation measures which are set out within the outline CEMP such that human health and environmental risks are reduced to, and controlled at, levels which do not represent a risk. Once operational, ground conditions are likely to have improved from the existing conditions and there are no adverse effects predicted.

Cultural Heritage

The main heritage feature on the application site is the tramroad at Ystradgynlais, which is designated as a scheduled monument (GM399) and is a c5km long section of Claypon's Extension to the Brecon Forest Tramroad. The tramroad extension originally ran between the River Tawe at its western end and Coelbren in the east, although only the central section is designated, reflecting the impacts of opencast mining and residential development on the non-designated sections The tramroad was 6.44km in length, but only c5km is designated as a Scheduled Monument.

The scheduled monument traces a long line across Mynydd-y-Drum in the Upper Swansea Valley, an upland area of common land and opencast mine workings. The geology of the area is anthracite coal which, while not initially as important as the 'steam coalfield' to the south, became a vital source of fuel for the region's industries in the later 19th century. The anthracite coal is found along the northern border of the South Wales coalfield, with a belt of limestone beyond it. The proximity of sources of limestone and coal, combined with the local availability of ironstone meant that all the necessary raw materials for iron smelting were easily accessible. This led to widescale industrialisation from the late 18th century onwards, with the area coming to be known as the 'Iron Cradle'. This was facilitated by the cutting of the Swansea Canal, which was opened in 1798. This opened up the head of the Swansea Valley to large scale industrialisation through its direct links to the port of Swansea.

The tramroad was built across the upland commons of Mynydd-y-drum. From Ystradgynlais it had a steep, straight incline out of the valley, before closely following the contours around to the southern side of the hill and onwards across the commons towards Coelbren. It is not a particularly early tramroad, but it is important for its historical associations and for its engineering, with a carefully surveyed route and the innovative hybrid use of both horse-drawn wagons and locomotives.

Assessment work in the preparation of a Scheduled Monument Consent application to construct the earthworks which the GCRE rolling stock test track will be constructed on identifies that the Tramroad at Ystradgynlais scheduled monument is the earthwork remains of one of the few surviving tramroads in the Swansea region. It is a rare survivor of the tramroads which once criss-crossed valleys of south Wales, and it is associated with the industrialisation of the region. It was built using a hybrid of horse-drawn and steam-driven technology, making it a historically significant feat of engineering and it was a part of the Brecon Forest Tramroad which was a vitally important route for the movement of raw materials for the flourishing iron trade in the area. As such, it is of national value. Specifically, the value of the tramroad is derived from its evidential and historical value. Its evidential value is derived from the from what the physical remains of the tramroad, its earthworks, cuttings and other features currently hidden under the soil and overgrowth, can tell us about the past. The scheduled monument description states that the remains of the tramroad have the '*potential to enhance and illustrate our knowledge and understanding of the development of the raw materials supply and transportation network associated with nineteenth century iron industry'* and that '*there is a strong probability of the presence of evidence relating to layout, building techniques and functional detail'.* While the evaluation by Border Archaeology found limited evidence, it was suggested that greater preservation was likely in the designated, and better preserved, section of the tramroad. The remains of features associated with the Ynysgedwyn Incline are of particular evidential value. More broadly, however, the potential that the surviving earthworks may preserve within them evidence of the tramroad structure or other evidence relating to its use, alongside the evidence which can be drawn from understanding the route itself and its design, give the monument as a whole evidential value.

The tramroad also possesses historical value, both associative and illustrative. Its associative value is derived from its relationship to the Brecon Forest Tramroad and as a facilitator in the industrialisation of the Upper Swansea Valley. It is also illustrative of the technology and innovation of the 19th century industrialists in the region, with one of the best preserved and most impressive tramroad inclines surviving at its western end. The hybrid nature of the tramroad, which incorporated both locomotive-driven and horse-powered elements, is illustrative of a moment in the development of railed infrastructure, which had evolved from the simple mineral tramroads to become lengthy and sophisticated

lines, carefully surveyed and crossing difficult terrain. Although well-preserved, the earthworks are hard to understand without interpretation. They do not have aesthetic or communal value.

With respect to the setting of the monument, it runs east from Ystradgynlais across Mynydd-y-Drum, ending where the road access for Nant Helen Opencast Mine cuts across the original line of the tramroad. Immediately north of the tramroad, at its western end, is the retained overburden of the opencast mine, which forms an enormous artificial hill. The western part of the route runs across the open upland of the un-mined part of Mynydd-y-Drum and there are views into the valleys to the north and south.

While the historic context of the monument is important to understanding its historical value, the connections between the remains of the tramroad and the Swansea Canal and the former industrial works at Ynysgedwyn, Onllwyn and Banwen are not easily appreciated within the monument's setting. Further, although the upland setting of the western part of the route has remained largely unchanged, the large-scale opencast mining at the eastern end has dramatically changed the landscape through which the tramroad runs. As such, the setting of the monument does not make a particular contribution to its value.

The detail of the acceptability of the scheme in terms of the scheduled monument will be assessed as part of the determination of the Scheduled Monument Consent application and the impact of the consented earthworks scheme. Notwithstanding that, it is clear that there is a valuable historic transport related feature on site, with a public right of way infrastructure that interfaces with it and as such there are clear opportunities to improve the interpretation and therefore understanding of this important heritage asset through the re-development of this site for a modern transport infrastructure use.

Operational and Construction Traffic

As already illustrated, a key benefit of this site for the proposed development is its overall accessibility not just by road, but importantly to rail and then to port facilities for the transportation of rolling stock to the site.

The Transport Assessment (TA) demonstrates that a significant amount of the transport infrastructure for the local highway is already in place to deal with a large number of HGV and other associated site traffic. There is a frequent bus service providing north-south accessibility with a well-situated bus stop, a good cycling route to Swansea and many PRoWs in the area.

Proposed on-site car parking will provide Ultra Low Emission Vehicles charging points in line with national policy. The TA includes a Framework Travel Plan that can be taken forward and developed into an agreed document for the proposed development once an operator is confirmed.

During construction, deliveries to the site are likely to be made via a mix of road and rail vehicle movements. The effects of the traffic generated by the development on the local highway network has been assessed using traffic capacity modelling for a variety of scenarios with robust assumptions made for a worst-case scenario.

The results indicate that the local highway network can accommodate the additional traffic and that the development will not have a significant effect on the performance of the junctions within the agreed study area.

The GCRE site will also be required to implement a site wide Construction Traffic Management Plan and use this as a means of monitoring the transport situation during construction to ensure health and safety at the site is always in line with best practice.

The existing access into the washery site from the A4221 would be the main access into/out of the site during construction for HGVs only with additional access from Onllywn Road (which runs north into the site from the A4109).

Deliveries to the site are likely to be made via a mix of road and rail vehicle movements. Whilst the exact split of deliveries is not known at this stage, a logical approach has been taken to generate assumptions around the split of vehicles. It has been assumed that equipment associated with the track works (formation, ballast, sleepers, rails, clips etc.) and other rail infrastructure (overhead line equipment, switches and crossings etc.) will primarily be delivered by rail.

The temporary increase in HGVs in the busiest phase of construction would have a significant effect on severance on Onllwyn Road. There would also be effects with regards to severance, pedestrian and cycle delay, fear and intimidation, driver delay and accident and safety, although these are not considered to be significant.

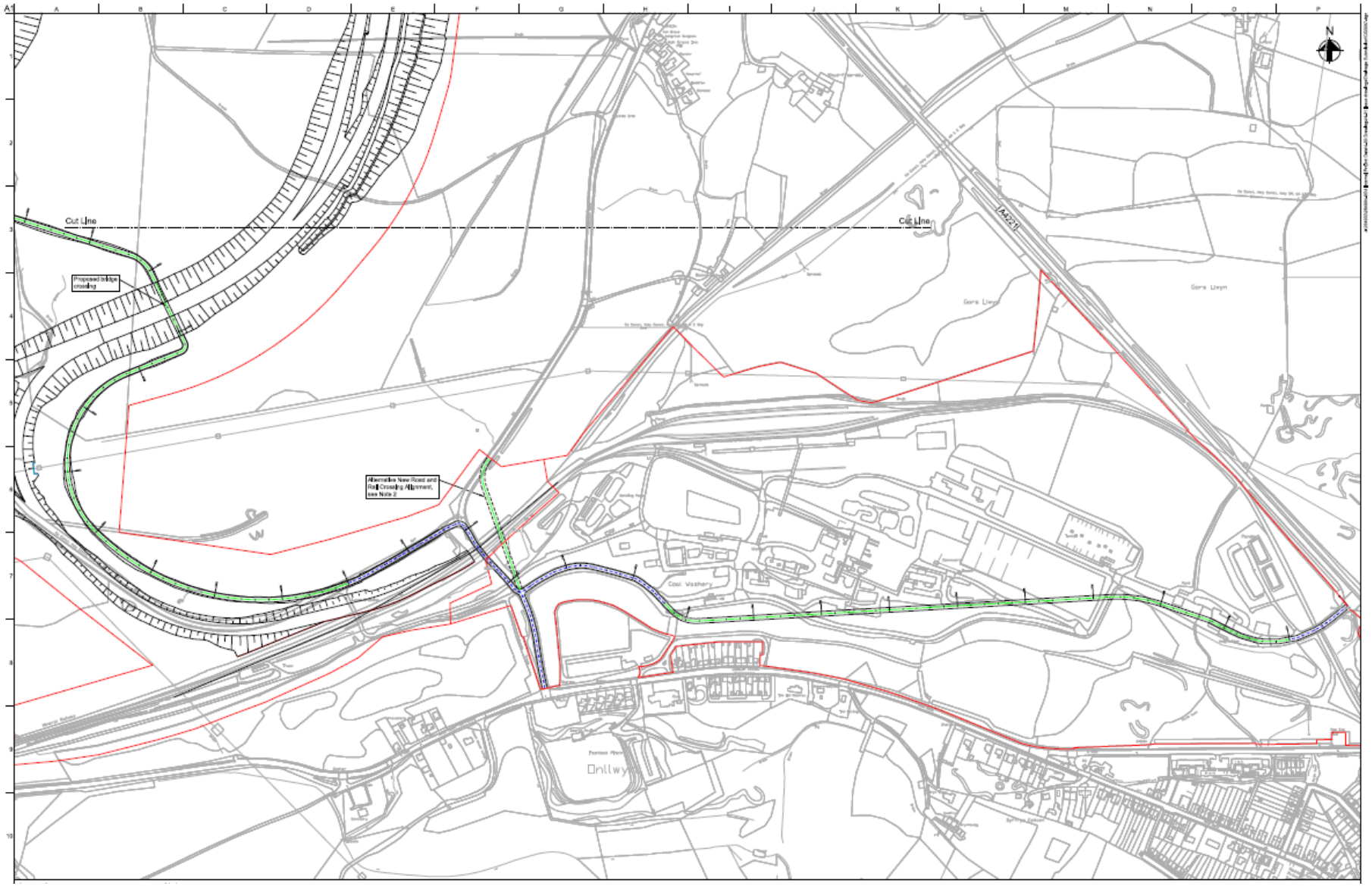
In order to manage these adverse effects of the construction phase, a Construction Traffic Management Plan (CTMP) will be secured with a planning condition.

The identified access routes to the project site make use of roads with limited sensitivity and it is proposed that construction traffic is monitored as part of the CTMP to review compliance.

Once GCRE is established and operational there are unlikely to be any significant adverse traffic effects. As a result, it is not thought that further mitigation measures would be required. However, it is proposed that a Travel Plan is introduced to mitigate and minimise traffic arriving to the site. This would align with the requirements of the Well-being of Future Generations (Wales) Act, 2015 and relevant technical guidance. As a result of these measures, no residual traffic and access effects are considered likely.

See plan over for proposed access solutions to and through the Washery site for the operational access arrangement.

Washery proposed access arrangement



Legend

- Planning Application Boundary
- New Access Road
- Existing Access Road to be re-used

Notes

1. The alignment shown on this drawing is based on concept design for outline planning application. Alignment and details to be developed further at subsequent design stages.

2. Possible changes to existing highway shown to deal with rail modifications, should they be required.

Matters that have arisen out of early engagement have focused on highway safety, noise and air quality impacts as well as matters of flooding and stability of earthworks. The latter two have been dealt with comprehensively and to the satisfaction of all regulatory parties in the earthworks application.

The EIA health and wellbeing assessment considers how the GCRE proposals may impact a number of health determinants, which are aspects of the environment which influence a person's health. Health determinants considered include: social networks, transport and connectivity, access to open space and nature, neighbourhood quality (covering air quality, noise and visual impacts), climate change and employment. The health assessment has considered impacts on people within the local area and along the branch railway line.

The health assessment identifies a significant beneficial effect during the construction period due to increased employment opportunities for local residents. No other significant adverse impacts are identified during construction or operation in relation to health and wellbeing. This is due to the range of mitigation measures that will be implemented. For example, noise barriers would be erected to reduce noise impacts for local residents, there would be extensive planting to screen visual impacts and a Public Rights of Way Mitigation Strategy would be implemented to deliver long-term improvements to the local network.

Specifically on air quality, the ES chapter examines the effects of humans and ecology associated with construction activities, including impacts from construction traffic. The air quality effects associated with traffic travelling to and from the completed development has also been examined.

Construction activities will be managed by the CEMP which will include measures to control air quality effects from construction including pollutants and dust. A CTMP will be prepared by the contractor and used to manage vehicle movements to the site. With implementation of the measures identified in the CEMP air quality effects from construction activities are not considered signification to humans or ecology. Furthermore during construction there would be no significant negative air quality effects in relation to construction traffic.

Once completed the proposed development is likely to have a negligible impact on air quality due to the small additional traffic associated with the proposed development and the distance between the test tracks and sensitive receptors. Overall the impact due to operation of the proposed development is predicted to be not significant.

This will be an operational site that in order to be accredited as a rail testing and validation facility, will have to demonstrate stringent health and safety protocols are in place and compliance with. Clear demarcation of space and route-finding will be important and laying out the different spaces to ensure that there is clear lines of sight will be a critical factor for both on-site staff and visitors to the facility. Waymarking/signage and fencing/barriers will be important in delineating areas that are not for general access, as well as alerting operational staff and visitors of areas of rolling stock movement, electrified track etc among other hazards

With the nature of the site activity and the testing and storage of valuable rolling stock, security will be an important operational consideration and perimeter security fencing and surveillance/hyper-connected communication infrastructure as well as demarcation of and clear definition between live/operational rail roads and more 'public' areas will be of utmost importance.

With there being areas of retained common land for grazing and restored public rights of way around parts of the site, signage and stock proof as well as security fencing will ensure that any grazing and recreational pedestrian movement on site is safe and suitably controlled.

Lighting for operational safety is an important consideration as highlighted earlier in this document.

Energy

Chapter 3 of PPW (Strategic and Spatial Choices) focuses on placemaking and strategic development. Paragraph 3.7 sets out that 'developments should seek to maximise energy efficiency and the efficient use of other resources (including land), maximise sustainable movement, minimise the use of non-renewable resources, encourage decarbonisation and prevent the generation of waste and pollution.'

UK Government announced in 2019 its commitment to become carbon neutral by 2050. More recently, in March 2020, the DfT published 'Decarbonising Transport', which explains Government's strategy in developing a Transport Decarbonisation Plan (TDP) which will be published later this year.

Since the Climate Change Act was passed in 2008, great progress has been made to reduce greenhouse gas (GHG) emissions, with a reduction of 30% in the decade to 2018. However, reaching a net-zero economy by 2050 will require accelerated efforts. Greenhouse gas (GHG) emissions will need to be cut in many industries, including transport. In fact, the contribution of transport to GHG emissions cannot be understated – in 2017, it was the largest source of emissions in the UK. Whilst other elements have reduced their pollution levels in recent times (since 1990, industry, power and waste have reduced their GHG emissions by over 50%), emissions arising from surface transport have increased.

Given rail is one of the most carbon-efficient modes of transport, particularly for medium and long distances, it has a key role to play in the decarbonisation of the transport industry as a whole. Some of the key topics mentioned in the documents are the need for further electrification programmes, the importance of adopting new technologies and the need for investment in both rail infrastructure and rolling stock.

Resilience and global responsibility are at the centre of the challenge posed by Welsh Government's net zero carbon aspirations.

Green railway technologies will help in the decarbonisation of transport and achieving a net-zero economy by 2050 and as such, GCRE could help to achieve decarbonisation in a short timescale by providing a testbed for new, low-carbon technologies, sustainable energy capture and storage and other innovations.

The concept illustrative plan (as well as the site size and other physical and locational characteristics) mean that the site has capacity for:

- A site layout which facilitates potential for on-site renewable energy production subject to detailed assessment of the feasibility and commercial viability of options;
- Buildings which integrate renewable energy generation (where possible, on a building by building basis);
- Buildings which are energy efficient across their whole lifetime, including construction and demolition;
- Managing buildings and site-wide operations in a way which minimises energy and carbon use; and
- Maximising opportunities for circular economies of waste management through the construction and the ongoing life-cycle of the site.

7. *Summary & Conclusions*

In its recent report on resilient infrastructure systems, in response to recent incidents exposing vulnerabilities, the National Infrastructure Commission recommends that "infrastructure operators [including rail] should carry out regular and proportionate stress tests, overseen by regulators, to ensure their systems and services can meet government's resilience standards, and take actions to address any vulnerabilities.

Without GCRE, the UK railway industry would continue to innovate at a slow pace. In addition, the UK railway industry will continue to be forced to take suboptimal approaches when it comes to testing and implementing many of their innovations, particularly when it comes to infrastructure developments.

Furthermore, the UK railways are subject to continued fleet and infrastructure failures, which create operational issues across the network, impacting reliability. Significant cost-efficiencies, on major programmes such as Network Rail's digital signalling programme, that could be unlocked through an independent testing facility would be foregone. It would also be difficult, if not impossible, to unlock the development of technologies related to reducing carbon emissions, making the railway more affordable, increasing capacity on the network and, ultimately, driving modal shift.

There is a clear gap in the European market for an independent and comprehensive railway testing facility which enables both infrastructure testing as well as integrated systems testing. There has been long-standing demand from the industry, but the high degree of fragmentation in the rail industry has been a barrier to the project becoming a reality. Government intervention is needed to address this market failure.

The proposed development will create a world leading testing and validation facility, learning facility for a site that is coming to the end of its current beneficial use.

The benefits of the scheme are clear and are far reaching and in terms of the validation of the scheme and what it seeks to achieve, it is the result of nearly two years of in-depth technical assessment and engineering work, developed in close collaboration with the rail industry and having been consulted on widely to date locally and with other sectors such as academia.

The ES demonstrates overall that where significant effects are identified, appropriate embedded and other mitigation measures are proposed to address those and it has been identified that these can be (subject to negotiation on the detail) secured through conditions. This Statement summarises the broad and multi-dimensional socio-economic benefits that could arise through the development at a local, regional, national and beyond level and given these and the fact that it is demonstrated that the proposed development is compatible with the land use strategy for the area and the current industrial use of the land, the conclusion is that the principle of development is acceptable in policy terms in the round and a departure from the Development Plans is justified.

It is considered that the proposed development ought to be granted planning permission in accordance with Section 70(2) of the Town and Country Planning Act 1990 and Section 38(6) of the Planning and Compulsory Purchase Act 2004 as whilst a site-specific departure, is in accordance in the round with the two Development Plans and has been demonstrated in this Statement to be in accordance with relevant national planning policy and other government guidance.

The overall positive planning balance warrant the grant of planning permission for the proposed development.